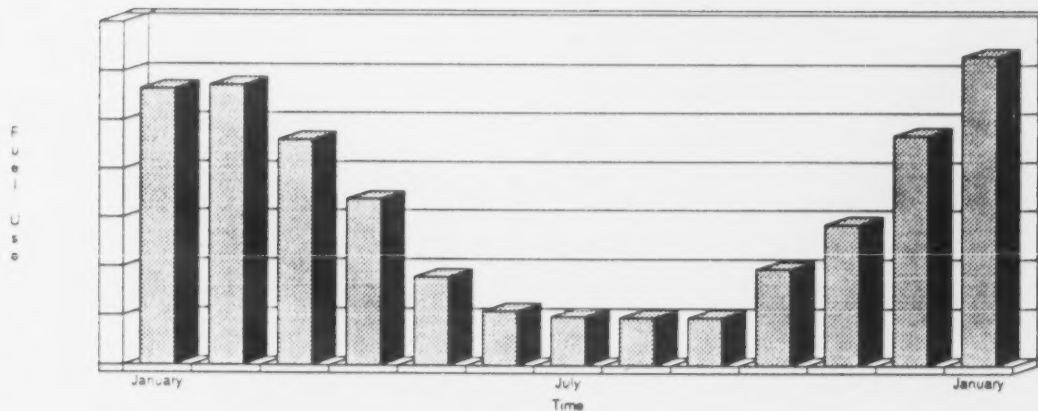


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Ohio Short Term Forecast of Utility Fuels 1989 - 1990



Division of Forecasting
Utilities Department
Public Utilities Commission of Ohio



State of Ohio
Richard F. Celeste
Governor

Public Utilities Commission
Jolynn Barry Butler
Chair

56355-1

Ohio Short Term Forecast of Utility Fuels 1989 - 1990

EDITOR

Galip Feyzioglu, Ph.D.

PROJECT MANAGEMENT & FORECASTS

David L. Wang

DATA & COMPUTER SUPPORT

Thomas Baird, Ph.D.
Brenda Nelson

Mi S.Lim
Ahad Osman-Gani

DISTRIBUTION

Margaret Frontz

John Borrows, PE.....Department Director
Gretchen Hummel, Esq.....Assistant Department Director
Kerry Stroup, Ph.D. Division Administrator

December 1989, Columbus, Ohio

Division of Forecasting Utilities Department



State of Ohio
Richard F. Celeste
Governor

Public Utilities Commission
Jolynn Barry Butler
Chair

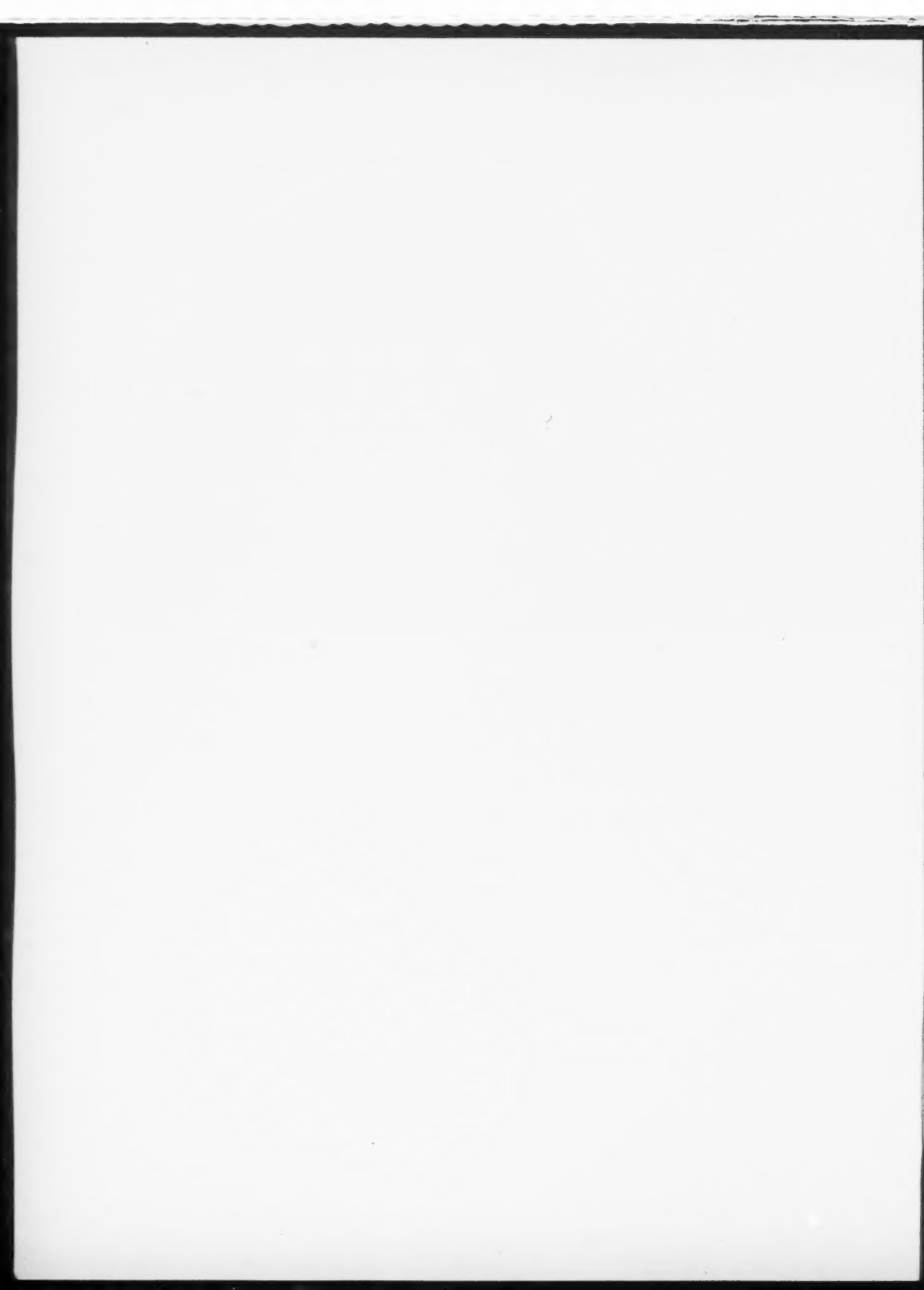
EXECUTIVE SUMMARY

Based on one year forecasts submitted by each of the major electric and natural gas utility companies serving Ohio, and based on independent projections of the Division of Forecasting of the Public Utilities Commission of Ohio, the supplies of fuels for generating electricity and supplies of natural gas for heating and manufacturing are forecasted to be adequate through October 1990. The forecast takes into account the possibility of a 10 percent colder than normal winter.

Supplies of coal, used to generate more than 93 percent of the electricity in Ohio, are not expected to fall below a safe margin for any generating utility company through October 1990.

Supplies of the eight major natural gas distribution companies serving the state are expected to be adequate through October 1990.

As in past years, roughly 50 percent of the coal supplied to Ohio electric utilities is from out of state sources. Approximately 91 percent of Ohio's natural gas supply will continue to come from out of state sources.



OHIO SHORT TERM FORECAST
OF UTILITY FUELS
1988-1989

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INTRODUCTION

Ohio Short Term Forecast of Utility Fuels 1989-1990 is a summary, analysis and assessment of the patterns and trends in the monthly demands for the supplies of natural gas and electricity in Ohio for the twelve month period beginning November 1, 1989. The utilities' forecasts and historical data are the primary input for this report. Several other sources of information have also been used, including historical energy data and the independent forecasting capabilities developed by the Division of Forecasting, federal energy reports and publications from the American Gas Association and the Electric Power Research Institute. A comprehensive data base has been developed to support the Division of Forecasting's ability to provide timely analyses and forecasts. This report is the technical and forecast summary from these sources.

1.1 Objectives

The major objectives guiding the preparation of this report are:

1. To provide historical data on energy usage, projections of energy availability and projections of consumption for the coming year.
2. To provide an analysis and an interpretation of short-term changes in energy supply and demand.
3. To provide an assessment of the adequacy of natural gas and electric energy supply for the upcoming twelve months.
4. To provide a strategy to prevent or mitigate any interruption or curtailment of service, if a potential deficiency is identified.

1.2 Requirements and Scope of This Report

Ohio Revised Code, section 4905.14(B), requires the natural gas and electric utilities in Ohio to file short-term forecast reports with the Public Utilities Commission of Ohio on the first day of November of each year. These reports include the following information:

1. The total demand, stated in terms of kilowatt hours or cubic feet, that the company projects will be expected of the company for the following twelve months.
 2. With respect to electric light companies, the supply of fuel for the generation of electricity that they will possess as of the first day of November. With respect to natural gas companies, the pertinent details of supply
 3. contracts with pipeline companies and producers for the following twelve months that they have executed and the quantity of the gas that they will possess in storage and will be available for delivery as of the first day of November.
- Where it appears from a comparison of the information reported that the
4. total demand projected by the company for the twelve months following the date of the report will exceed the ability of the company to furnish it, the means which the company intends to employ in order to prevent any interruption or curtailment of service.

The Division of Forecasting prepares a summary, analysis and assessment of this information as an extension of its public information function.

The municipal utilities, industrial facilities and the rural electric cooperatives are not required to file this semi-annual report. Accordingly, this report incorporates data from the major electric and gas utilities serving the State. The Division of Forecasting estimates that in 1989 the major utilities included in this report provided approximately 96 percent of the electricity consumed in the State and 98 percent of the natural gas, excluding self-help gas.

1.3 Division of Forecasting Projections

As part of its analysis, the Division of Forecasting makes its own independent forecasts to serve as validation checks. The Division has the capability to forecast monthly demand by utility and for the State as a whole within a reasonable level of error (less than five percent in most cases). Such forecasts are based on an analysis of historical month-by-month actual consumption for both electricity and natural gas and

other appropriate variables such as population, income, the business cycle, and temperature data. However, as in any short-term forecast, certain important socioeconomic conditions are assumed in the independent forecasts. These assumptions are:

1. Energy consumption generally follows a seasonal and historical pattern.
2. Long-term socioeconomic changes have a minimal effect on short-term energy consumption.

1.4 Overview of This Report

The report is divided into two parts: electric energy and natural gas. Materials presented in these two parts are, for the most part, parallel in arrangement. They contain:

- (a) a profile of reporting utilities;
- (b) historical sources of supplies and suppliers;
- (c) consumption history by sector, utility and the State;
- (d) the utilities' forecasts and independent forecasts by the Division of Forecasting.

1.5 Energy Consumption and Temperature

Changes in the observed annual energy requirements of the three major consuming sectors (residential, commercial and industrial) may be explained by a variety of factors. Temperature is a variable which explains much of the observed variation. It is particularly significant in the residential and commercial sectors, during summer and winter periods, when electricity and natural gas are used to maintain comfortable room temperatures.

The two indicators most widely used to measure temperature-sensitive energy requirements are heating degree days and cooling degree days. Degree days are calculated as follows: The daily mean temperature is obtained by adding together the maximum and minimum temperatures reported for the day and dividing the total by two. When the daily mean temperature is 65 degrees Fahrenheit, the degree day total is zero. Each degree of mean temperature below 65 degrees Fahrenheit is counted as

one heating degree day. For example, if the maximum temperature was 60 degrees Fahrenheit and the minimum temperature was 50 degrees Fahrenheit for a particular day, then the daily mean temperature would be 55 degrees Fahrenheit $\{(60+50)/2\}$. The number of heating degree days would be $10 \{65-55\}$. This is a convenient indicator because the amount of heat required to maintain a certain temperature level is proportional to heating degree days in winter.

The cooling degree days are defined similarly; Each degree of mean temperature above 65 degree Fahrenheit is counted as one cooling degree day. If the daily mean temperature is 65 degree Fahrenheit or lower, the cooling degree day total is zero. For example, if the maximum temperature was 80 degrees Fahrenheit and the minimum temperature was 70 degrees Fahrenheit for a particular day, then the daily mean temperature would be 75 degrees Fahrenheit $\{(80+70)/2\}$. The number of cooling degree days would be $10 \{75-65\}$. This is another convenient forecasting indicator because the amount of energy required to maintain a certain temperature level is proportional to cooling degree days in summer.

Since most homes and commercial buildings in Ohio are heated by natural gas, the reporting gas utilities are required to submit supply and demand forecasts under a normal winter scenario and a 10 percent colder than normal winter scenario. In addition, the relationship between natural gas consumption and heating degree days is closely monitored during the winter heating season (from November through March).

Table 1 and Figure 1 present monthly comparisons of population-weighted state heating degree days for the past two heating seasons. A "normal" heating degree day series, defined as the 19 year average of the years 1970 to 1988 is also included in the comparisons.

ELECTRICITY

This section is based on the November forecasts filed by eight major Ohio electric utilities. Columbus Southern Power Company and Ohio Power Company are subsidiaries of the American Electric Power Company. Because the centrally dispatched American Electric Power operates as an integrated distribution system, the report reviews forecasts of demand and fuel adequacy for the entire American Electric Power Company. The Allegheny Power System is also a centralized power generation and distribution system and is reviewed in the same manner. One subsidiary, Monongahela Power has a portion of its service area located in southeast Ohio. While Cleveland Electric Illuminating Company and Toledo Edison Company are subsidiaries of Centerior Energy Corporation, both companies submit separate forecasts and will be treated as separate companies within the context of this report. The forecasts of eight utilities serving Ohio are presented as follows:

1. Allegheny Power System (APS) Monongahela Power Company
Other out-of-state subsidiaries not subject to reporting
2. American Electric Power Company (AEP)
Columbus Southern Power Company (CSP)
Ohio Power Company (OP)
Other out-of-state subsidiaries not subject to reporting
3. Cincinnati Gas and Electric Company (CG&E)
4. Cleveland Electric Illuminating Company (CEI)
5. Dayton Power and Light Company (DP&L)
6. Ohio Edison Company (and its subsidiary Pennsylvania Power Company, which is not subject to reporting) (OE)
7. Ohio Valley Electric Corporation (OVEC)
8. Toledo Edison Company (TE)

With the exception of OVEC, each of these is an investor-owned utility supplying electricity to residential, commercial and industrial customers in its service area. The

Ohio Valley Electric Corporation is a single-customer utility supplying power for the uranium enrichment plant at Piketon, Ohio. It also sells surplus generation to other electric utilities.

2.1 Supply and Generation

Buckeye Power, Inc., which is a consumer-owned cooperative, is exempt from the reporting requirements analyzed in this report. Therefore, all historical and forecast magnitudes projected in this report exclude Buckeye Power.

2.1.1 Source/Supplier of Fuel for Electric Generation

Fuels used in Ohio for electric generation include coal, oil, natural gas and nuclear fuel. Nuclear fuel sources are not monitored by the Division. All other fuels are monitored through the utilities' monthly reports. Tables 2 and 3 list coal and oil deliveries to power plants located in Ohio. The main sources of supply and/or suppliers of these fuels remain the same as in the last reporting period.

Coal deliveries to Ohio electric plants during the twelve months ending July 1989 decreased by 1,794,700 short tons or 3.78 percent from the previous twelve month period (see Table 2 and Figure 2). Deliveries of oil to Ohio power plants increased by 911,600 barrels or 76.46 percent during the twelve months ending July 1989 from the previous twelve month period (see Table 3 and Figure 3).

2.1.2 Electric Generation by Type of Fuel

Coal remains the main source of fuel for electric generation in Ohio, a condition which is not expected to change in the future. In the twelve month period ending July 1989, 93.31 percent of the total electricity generated in Ohio was from coal, 0.31 percent from gas and oil and 6.38 percent from nuclear generation.

The total amount of electricity generated for Ohio grew by 6.53 percent to 132,469 gigawatt-hours. The amount of electricity produced from coal sources increased 7.38 percent to 123,616 gigawatt-hours while nuclear-generated electricity fell to 8.45 gigawatt-hours which was 7.30 percent less than the previous

twelve months. With acid-rain legislation becoming a growing concern, the percentage of electricity generated by coal fired plants may slightly decline in the near future.

Table 4 and Figure 4 show the combined monthly totals of the reporting utilities' net generation from Ohio plants. Historical power plant fuel consumption and fuel stocks are presented in Table 5.

2.2 Historical Behavior of Sectoral Requirements

The discussion and the observations presented in this section (Section 2.2) exclude Buckeye Power, Inc. service area requirements. OVEC is also excluded from consideration in this section because the demand for OVEC's output is almost exclusively a function of the USDOE's budgetary and other policy considerations. For the remainder of the investor-owned electric utilities operating in Ohio, electricity consumption within the residential and commercial sectors exhibits regular seasonal patterns while the industrial sector fluctuates widely with general economic conditions (see Appendix A).

The residential sector consumption posted a 0.5 percent decline for the twelve month period ending in August 1989 compared to a 4.3 percent increase last year (see Table 6 and Figure 5-A). Sales over the first nine months grew at an annualized rate of 2.4 percent. However, temperatures returned to near normal averages during the summer months after experiencing an unusually hot summer in 1988. As a result, consumption fell sharply at an annualized rate of 8.3 percent for the summer months in 1989.

The commercial sector consumption posted a moderate gain of 2.5 percent for the twelve month period ending in August 1989 (see Table 6 and Figure 5-B). As in the case of the residential sector, the effect of a relatively normal summer caused commercial sales to fall slightly from the previous summer months which had registered robust gains during the 1988 summer months.

The industrial sector consumption, excluding OVEC, posted a 1.7 percent gain for the twelve month period ending in August 1989 compared to an 8.3 percent increase for the same period ending in August 1988 (see Table 6 and Figure 5-C). The weaker

growth in industrial sales reflect both the relatively cooler summer temperatures in 1989 and the peaking out of the current phase of the business cycle, nationwide.

Total electricity consumption in the State between September 1988 and August 1989 was 0.1 percent higher than the preceding twelve months (see Table 6 and Figures 5-D & 5-E). Although modest percentage gains were realized in the commercial and industrial sectors, these gains were offset by the downturn in the residential and other sectors to produce only a slight rise in total sales.

2.3 Twelve Month Electricity Demand Forecasts

Each electric utility is required by the Ohio Revised Code, section 4905.14(B), to submit forecasts at the beginning of July and November to the Public Utilities Commission of Ohio, Division of Forecasting. The forecasts are required to project the total demand of each company's service area for the following twelve months. These forecasts are displayed in Appendix A, Tables A-1 through A-8, along with independent forecasts prepared by the Division of Forecasting. The Division also prepares independent twelve month forecasts of electricity demand for the State of Ohio, by sector. These forecasts are displayed in Appendix A, Tables A-9 through A-12.

2.4 Assessment of Utility Fuel Adequacy

Tables 7-A and 7-B present the utilities' projections of deliveries, consumption, and end-of-month stocks of coal and oil for the generation of electricity. Table 7-C presents the Division's independent assessment of the adequacy of supply of generating fuels. The Division's projections and assessments are presented for the CAPCO Group of utilities, which include Cleveland Electric Illuminating Company, Ohio Edison Company, and Toledo Edison Company; for the American Electric Power and Allegheny Power Systems, and for Buckeye Power Inc., Dayton Power and Light Company, Cincinnati Gas and Electric Company, and the Ohio Valley Electric Corporation.

2.4.1 Coal

The Division's projections, as well as those of the electric utilities, indicate an adequate supply of coal throughout the forecast period for each utility serving the State. The American Electric Power System possessed the highest average monthly inventory of coal with about 2.15 months of supplies while Cleveland Electric Illuminating Company retained the lowest average monthly inventory with 1.10 months of coal supplies in stock. The average monthly inventory for the eight companies under consideration was 53 days.

2.4.2 Oil

Each electric utility forecasts an adequate supply of oil for the generation of electricity throughout the forecast period. Net generation from oil is currently 0.25 percent of total net generation. Oil is being used as a start-up fuel and in peaking units. Due to the current high reserve margins for all utilities, the Division does not anticipate that the utilities will generate much electricity from peaking units and consequently our projections indicate that there will be an adequate supply of oil, under normal generating conditions.

**TABLE 1. POPULATION-WEIGHTED
HEATING DEGREE-DAY SUMMARY FOR OHIO¹
NOVEMBER 1987 to MARCH 1989**

MONTH	1988-1989	NORM	1987-1988
-------	-----------	------	-----------

NOVEMBER	659	672	574
DEVIATION FROM NORM	-1.9%		-14.6%
DEVIATION FROM PREVIOUS YEAR	14.8%		-22.1%

DECEMBER	1060	1024	932
DEVIATION FROM NORM	3.5%		-9.0%
DEVIATION FROM PREVIOUS YEAR	13.7%		-7.6%

JANUARY	942	1259	1240
DEVIATION FROM NORM	-25.2%		-1.5%
DEVIATION FROM PREVIOUS YEAR	-24.0%		7.5%

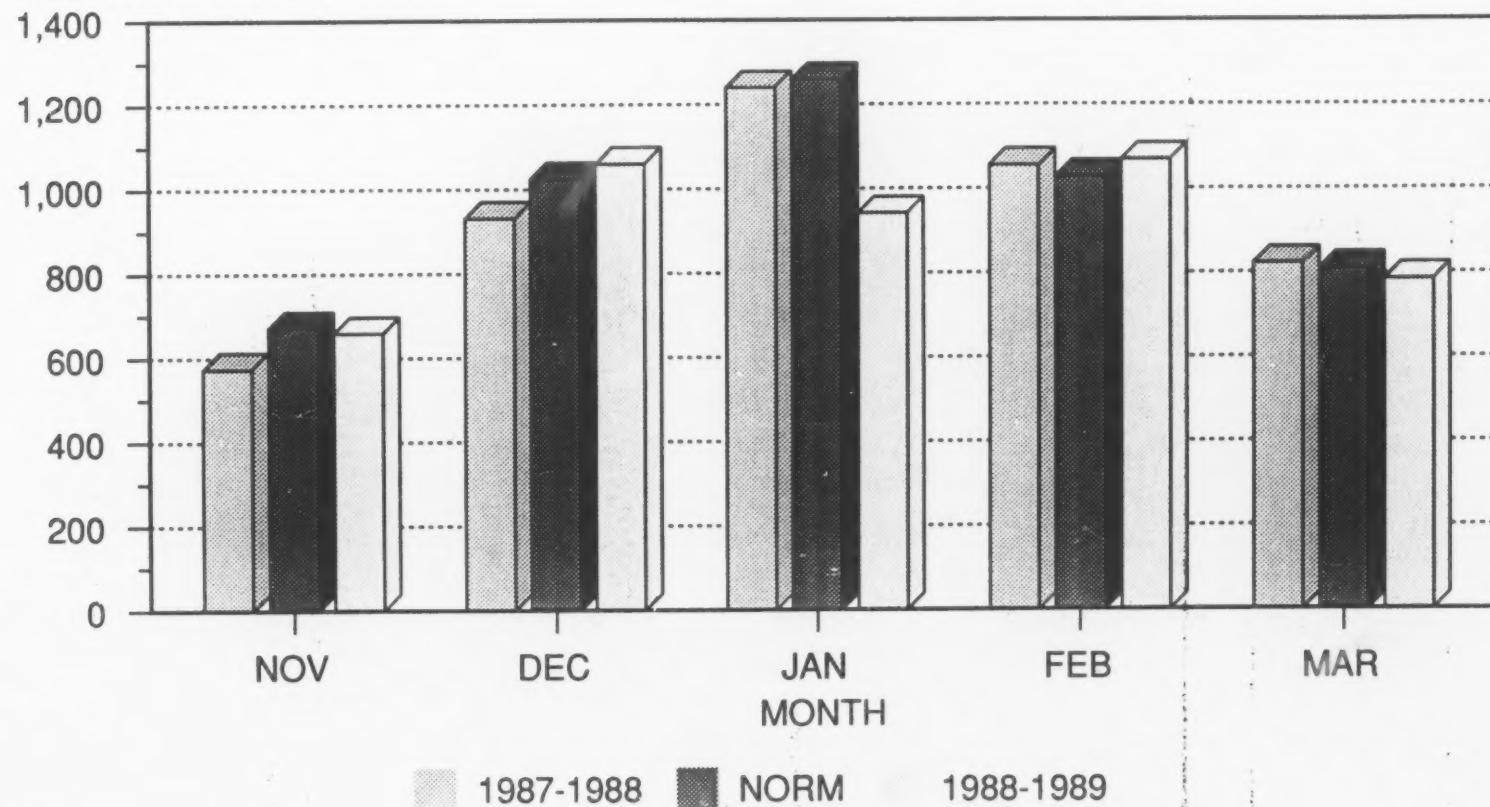
FEBRUARY	1069	1028	1056
DEVIATION FROM NORM	4.0%		2.7%
DEVIATION FROM PREVIOUS YEAR	1.2%		14.4%

MARCH	784	809	822
DEVIATION FROM NORM	-3.1%		1.6%
DEVIATION FROM PREVIOUS YEAR	-4.6%		13.2%

¹ Source: National Oceanic and Atmospheric Administration, Historical Climatology Series 5-1 and the Division of Forecasting.

FIGURE 1. POPULATION- WEIGHTED DEGREE DAYS FOR OHIO¹
WINTER HEATING SEASONS
(1988 & 1989)

HEATING DEGREE DAYS



¹ Source: Table 1.

**TABLE 2. SOURCE OF COAL SUPPLY TO ELECTRIC UTILITIES
OHIO PORTION¹
(1000 Short Tons)**

Month	DISTRICT NO.								
	1	2	3	4	6	7&8	9	Other	Total
1987									
January	0.0	252.1	18.0	2,021.0	316.0	1,031.6	37.5	0.0	3,676.2
February	0.0	256.3	23.1	2,053.9	276.7	1,248.5	21.2	0.0	3,879.7
March	0.0	277.4	12.2	2,202.9	342.9	1,167.2	54.4	0.0	4,057.0
April	0.0	227.8	29.0	1,893.8	287.9	1,159.1	18.0	1.5	3,617.1
May	0.0	192.8	41.0	1,751.1	304.5	1,093.2	4.6	12.7	3,399.9
June	0.0	346.9	0.0	1,765.0	277.8	1,382.4	3.1	18.2	3,793.4
July	10.0	305.4	21.0	1,937.9	183.8	1,218.9	12.3	12.5	3,701.8
August	11.0	365.3	22.5	2,201.9	286.7	1,401.1	178.1	0.0	4,466.6
September	4.0	305.9	13.0	2,150.4	310.4	1,322.8	35.8	0.0	4,142.3
October	11.0	216.7	1.5	2,206.0	276.1	1,323.5	0.0	0.0	4,034.8
November	10.0	327.9	6.1	2,186.3	259.3	1,448.6	1.4	0.0	4,239.6
December	0.0	248.5	1.5	2,334.1	60.6	1,604.9	10.8	1.5	4,261.9
Total	46.0	3,323.0	188.9	24,704.3	3,182.7	15,401.8	377.2	46.4	47,270.3
% of Total	0.1%	7.0%	0.4%	52.3%	6.7%	32.6%	0.8%	0.1%	100.0%
1988									
January	10.0	256.4	0.0	2,345.2	257.1	1,356.1	0.0	7.1	4,231.9
February	0.0	261.2	0.0	2,148.7	285.0	1,246.4	33.6	0.0	3,974.9
March	8.0	355.9	0.0	1,959.4	266.4	1,325.8	31.3	30.4	3,977.2
April	40.0	234.4	12.0	1,841.6	299.4	853.7	13.7	13.5	3,308.3
May	43.0	260.6	20.2	1,736.7	262.2	1,178.7	20.9	33.8	3,556.1
June	0.0	82.0	57.0	1,886.9	246.4	1,338.8	28.5	13.2	3,652.8
July	10.0	208.9	38.7	1,743.2	95.1	1,439.9	38.8	5.8	3,580.4
August	57.0	242.8	63.7	1,703.8	284.7	1,597.9	69.5	11.0	4,030.4
September	0.0	196.5	27.1	1,703.1	291.8	1,112.7	26.7	6.3	3,364.2
October	28.0	316.4	12.0	1,624.9	322.3	1,009.2	14.1	0.0	3,326.9
November	29.0	240.5	36.0	688.2	246.3	1,091.6	22.6	6.4	3,360.6
December	18.0	246.6	0.0	2,351.0	283.8	1,474.2	37.1	4.6	4,115.3
Total	243.0	2,902.2	266.7	22,432.7	3,140.5	15,025.0	336.8	132.1	44,479.0
% of Total	0.5%	6.5%	0.6%	50.4%	7.1%	33.8%	0.8%	0.3%	100.0%
1989									
January	37.0	238.8	100.2	2,106.2	260.8	1,180.1	27.3	0.0	3,950.4
February	19.4	216.6	77.3	2,072.2	288.9	1,072.0	24.5	3.0	3,773.9
March	0.0	279.4	83.7	2,327.5	288.6	1,508.7	96.1	6.3	4,590.3
April	27.7	215.0	71.9	2,101.2	365.7	1,475.2	4.6	10.8	4,272.1
May	38.6	106.9	103.7	2,155.2	393.4	1,401.5	12.3	0.0	4,211.6
June	42.5	208.8	88.0	1,762.3	271.2	1,216.4	26.2	11.2	3,626.6
July	37.6	173.3	30.2	1,473.8	100.5	1,121.9	71.0	1.6	3,009.9

District

1. Eastern Pennsylvania

2. Western Pennsylvania

3. Northern West Virginia

4. Ohio

6. Panhandle (in West Virginia)

7. Southern No. 1 (in West Virginia and Virginia)

8. Southern No. 2 (in West Virginia and Virginia)

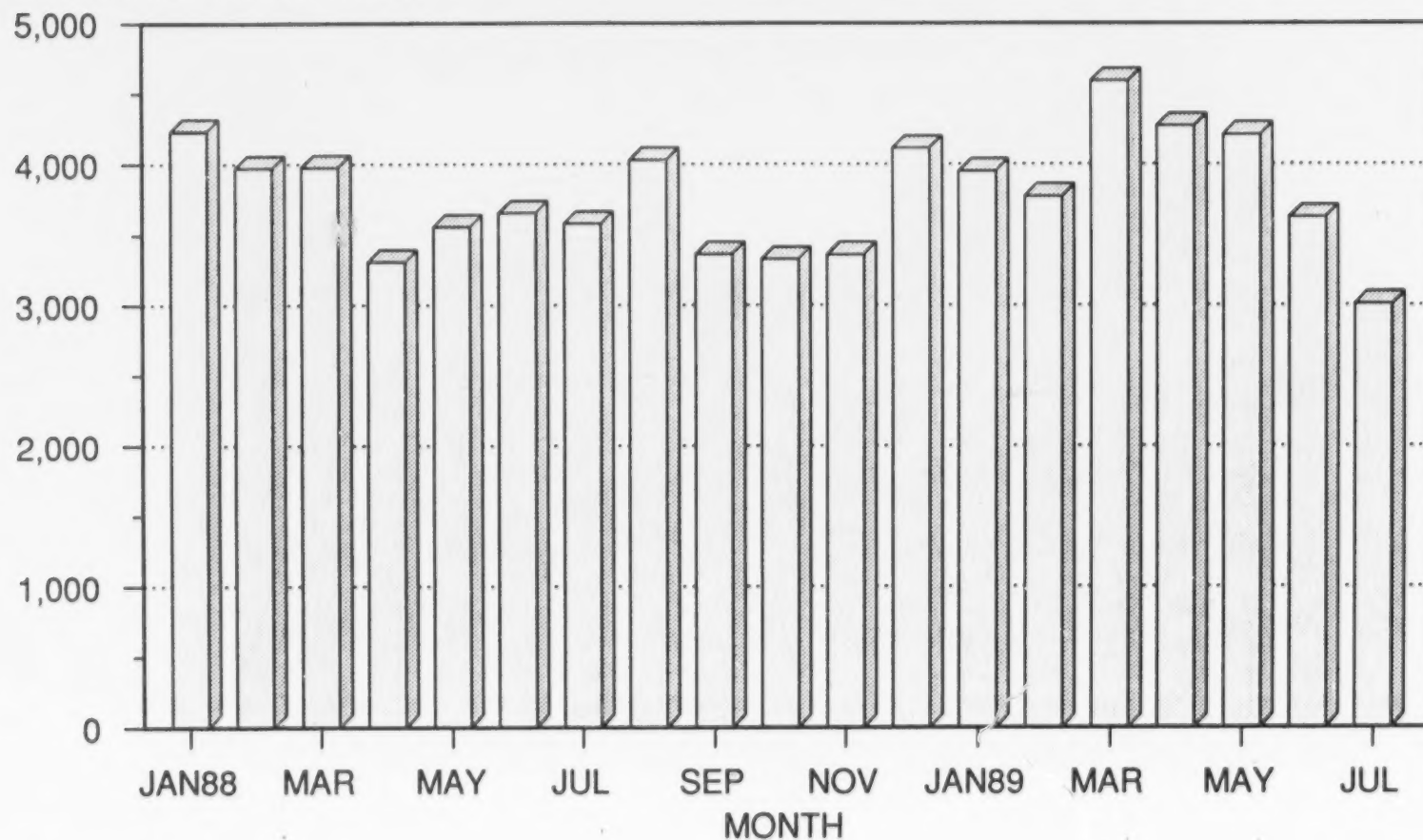
9. Western Kentucky

Other- Primarily from Wyoming and Utah

¹ Source: Form FPC 423.

FIGURE 2. MONTHLY COAL DELIVERIES TO POWER PLANTS IN OHIO¹
(JANUARY 1988 - JULY 1989)

THOUSAND SHORT TONS



¹ Source: Table 2.

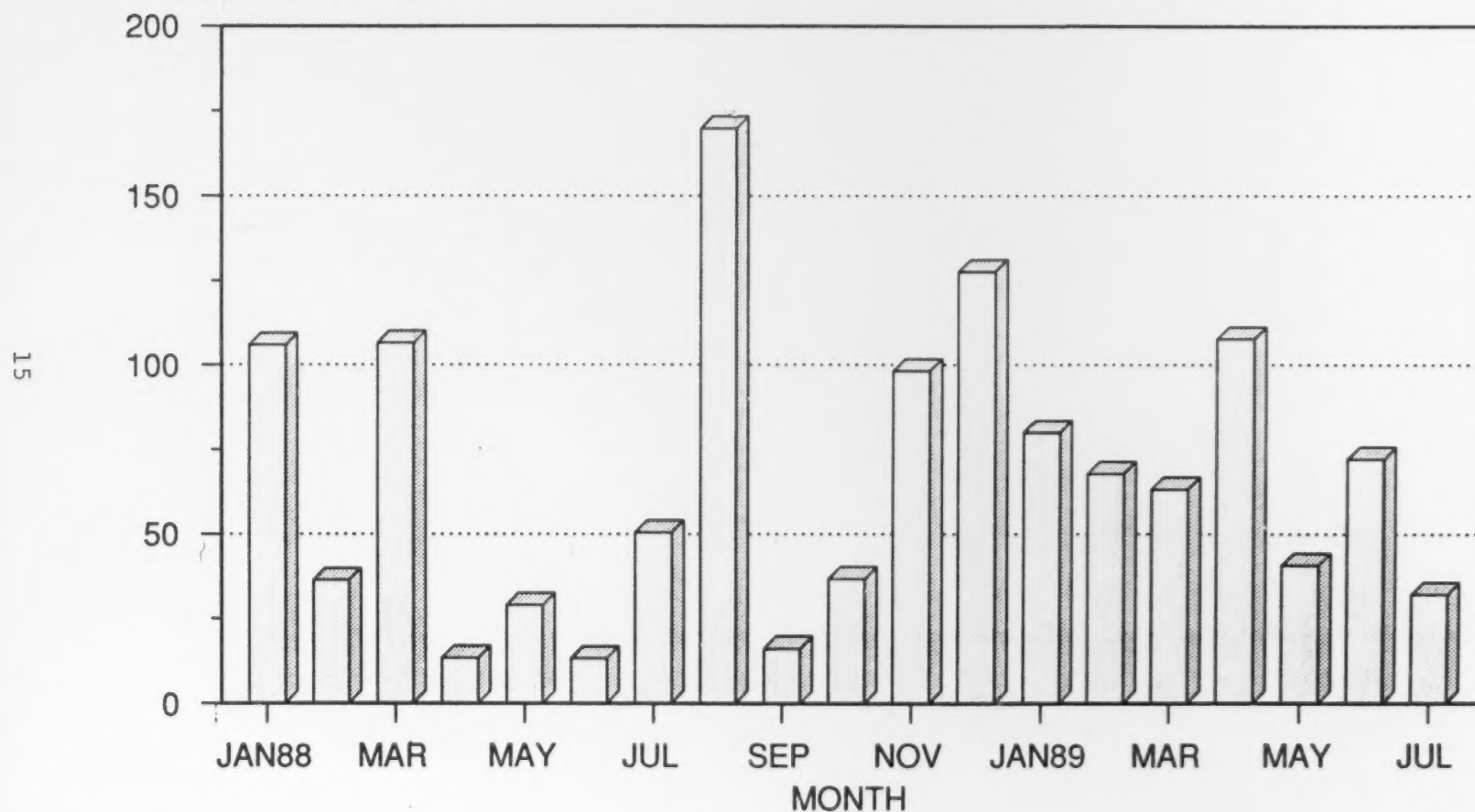
**Table 3. Major Oil Suppliers to Electric Utilities
Ohio Portion¹
(Thousand Barrels)**

	Allied	Marathon	Standard	Union	Other	Total
1987						
January	13.9	0.0	0.0	0.0	6.0	19.9
February	10.2	0.0	0.5	0.0	33.8	44.5
March	10.1	0.4	0.2	0.0	15.7	26.4
April	12.8	0.0	0.5	0.0	7.8	21.1
May	31.2	0.0	0.5	0.0	8.7	40.4
June	14.6	0.0	0.0	0.0	8.0	22.6
July	21.4	0.0	0.2	0.0	5.1	26.7
August	39.2	0.0	0.0	0.0	21.2	60.4
September	9.5	0.0	2.9	0.0	5.1	17.5
October	16.7	0.0	3.3	0.0	7.1	27.1
November	15.8	0.0	0.7	0.0	18.6	35.1
December	9.2	0.0	4.2	0.0	8.5	21.9
Total	204.6	0.4	13.0	0.0	145.6	363.6
% of Total	56.3%	0.1%	3.6%	0.0%	40.0%	100.0%
1988						
January	37.9	0.0	4.7	0.0	63.2	105.8
February	21.0	0.0	0.0	0.0	15.3	36.3
March	49.6	0.0	0.3	0.0	56.6	106.5
April	6.7	0.0	0.9	0.0	5.8	13.4
May	20.2	0.0	0.2	0.0	8.6	29.0
June	6.9	0.0	0.0	0.0	6.3	13.2
July	43.9	0.0	0.0	0.0	6.5	50.4
August	147.0	0.4	0.4	0.0	22.0	169.8
September	9.1	0.0	0.0	0.0	7.0	16.1
October	33.6	0.0	0.0	0.0	3.1	36.7
November	84.5	0.0	0.0	0.0	13.7	98.2
December	67.4	0.0	0.3	0.0	59.8	127.5
Total	527.8	0.4	6.8	0.0	267.9	802.9
% of Total	65.7%	0.0%	0.8%	0.0%	33.4%	100.0%
1989						
January	68.8	0.0	0.6	0.0	10.5	79.9
February	52.8	0.0	0.2	0.0	14.7	67.7
March	42.4	0.0	1.1	0.0	19.7	63.2
April	57.7	0.0	0.0	0.0	49.9	107.6
May	15.2	0.0	0.6	0.0	24.8	40.6
June	61.9	0.0	0.2	0.0	10.1	72.2
July	20.2	0.0	0.5	0.0	11.4	32.1

¹ Source: Form FPC 423.

FIGURE 3. MONTHLY OIL DELIVERIES TO POWER PLANTS IN OHIO¹
(JANUARY 1988 - JULY 1989)

THOUSAND BARRELS



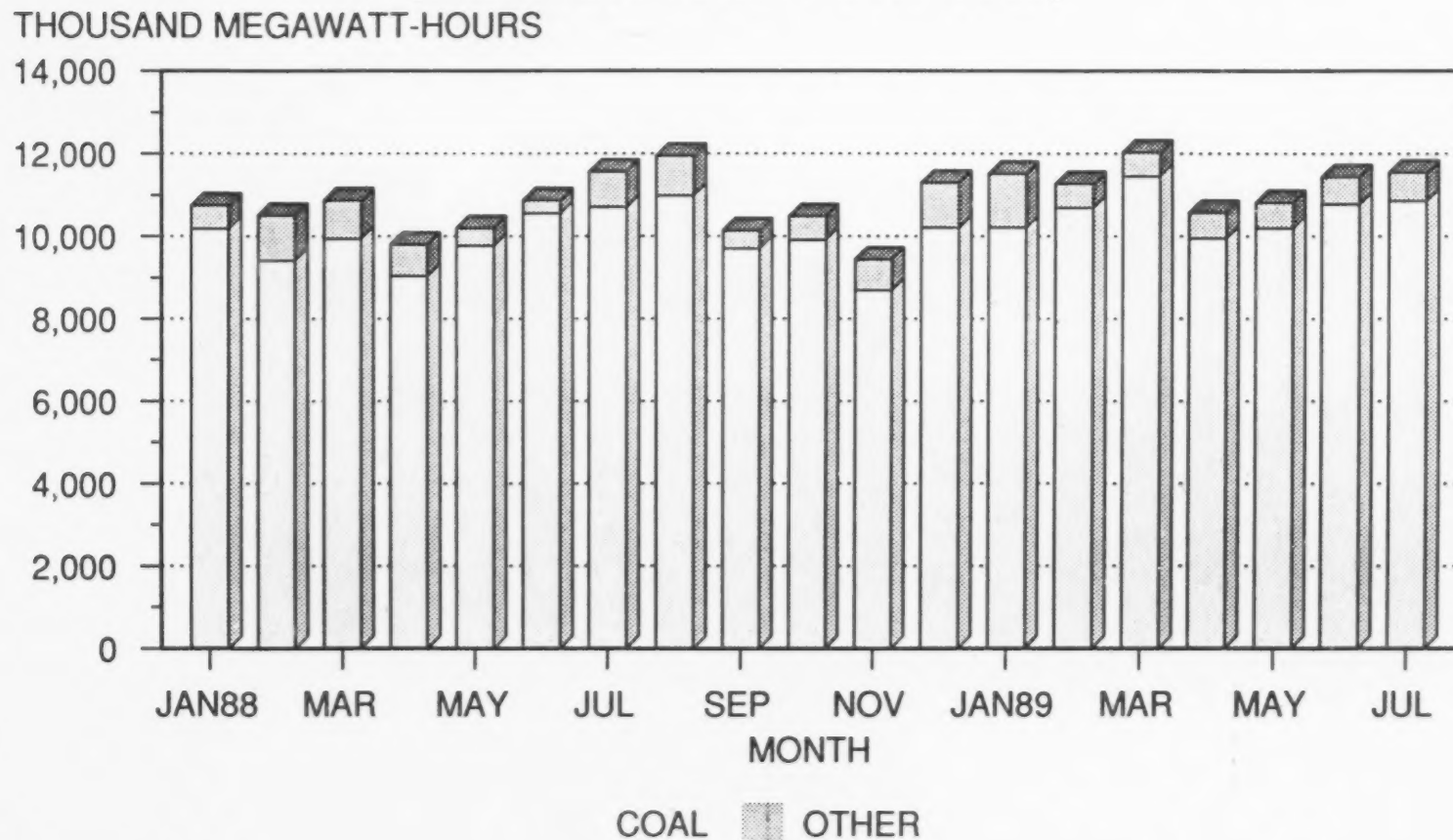
¹ Source: Table 3.

**Table 4. Major Ohio Utilities - Net Generation
by Type of Fuel (Ohio Portion)¹
(Thousand MWH)**

	Coal	Oil	Gas	Nuclear	Total
1987					
January	10,152	6	0	289	10,448
February	9,583	5	0	323	9,912
March	10,318	5	0	415	10,738
April	9,008	5	0	615	9,628
May	9,197	9	0	149	9,355
June	10,010	7	0	635	10,652
July	11,033	23	0	576	11,633
August	10,466	9	0	613	11,088
September	8,949	5	0	827	9,782
October	8,862	5	0	894	9,762
November	8,412	15	0	885	9,313
December	8,854	2	0	1,017	9,873
Total	114,845	97	3	7,238	122,182
% of Total	93.99%	0.08%	0.00%	5.92%	100.00%
1988					
January	10,185	22	0	537	10,744
February	9,409	5	0	1,085	10,499
March	9,928	3	0	945	10,876
April	9,033	3	0	758	9,794
May	9,763	3	0	424	10,190
June	10,551	7	0	312	10,870
July	10,708	32	0	815	11,555
August	10,978	75	73	819	11,945
September	9,698	6	0	433	10,137
October	9,913	24	0	542	10,479
November	8,689	24	0	724	9,437
December	10,208	27	0	1,062	11,297
Total	119,063	232	73	8,456	127,824
% of Total	93.15%	0.18%	0.06%	6.61%	100.00%
1989					
January	10,207	19	0	1,290	11,516
February	10,686	22	0	557	11,265
March	11,458	20	0	552	12,030
April	9,947	19	0	602	10,568
May	10,195	25	0	595	10,815
June	10,781	23	0	629	11,433
July	10,856	47	2	641	11,546

¹ Source: Form EIA-759.

FIGURE 4. NET GENERATION BY TYPE OF FUEL¹
MAJOR OHIO ELECTRIC UTILITIES (OHIO PORTION)
(JANUARY 1988 - JULY 1989)



¹ Source: Table 4.

**Table 5. Major Ohio Utilities
Fuel Consumption and Stocks¹
(Ohio Portion)**

	Coal		Oil		Gas
	(Thousand Tons)		(Thousand 42-Gal. Bbls.)		(MMCF)
	Burned	In Stock	Burned	In Stock	Burned
1987					
January	4,367.7	10,045.9	49.1	318.0	20.2
February	4,108.8	10,202.2	37.0	411.4	13.6
March	4,460.5	10,314.8	45.9	424.4	22.4
April	3,947.0	10,426.0	49.0	407.4	40.1
May	4,123.6	10,150.8	55.9	406.9	44.9
June	4,335.6	10,110.4	58.7	395.4	31.8
July	4,832.1	9,277.0	96.6	355.9	59.5
August	4,653.9	9,326.3	47.5	374.4	42.5
September	3,886.2	9,823.0	44.5	370.2	29.3
October	3,844.1	10,391.4	52.3	346.1	27.3
November	3,508.4	11,316.4	68.1	375.8	30.1
December	3,850.4	11,797.6	49.5	338.4	11.2
Total	49,918.3	123,181.8	654.1	4,524.3	372.9
Avg/Month	4,159.9	10,265.2	54.5	377.0	31.1
1988					
January	4,341.9	11,681.5	101.7	359.8	20.8
February	4,123.2	11,598.6	45.2	352.9	19.3
March	4,276.9	11,180.1	38.5	411.2	35.8
April	3,923.6	10,770.8	34.3	408.1	19.7
May	4,212.3	10,438.1	39.3	394.3	24.5
June	4,632.8	10,364.2	90.7	364.5	27.6
July	4,727.1	9,330.7	108.3	323.9	39.2
August	4,851.2	8,938.6	206.6	362.4	105.6
September	4,265.8	8,371.8	37.2	361.2	70.1
October	4,309.4	8,450.0	82.8	311.1	18.2
November	3,784.0	8,926.7	94.2	317.5	23.2
December	4,445.6	8,525.6	93.2	384.6	16.1
Total	51,893.8	118,576.7	972.0	4,351.5	420.1
Avg/Month	4,324.5	9,881.4	81.0	362.6	35.0
1989					
January	4,472.5	8,338.8	75.5	408.5	9.7
February	4,639.6	7,825.0	84.6	388.5	19.9
March	4,960.0	7,684.1	79.0	369.3	7.9
April	4,245.4	8,182.0	67.6	388.9	13.5
May	4,296.5	8,498.6	85.2	365.4	24.4
June	4,725.8	7,649.9	86.6	383.1	40.7
July	4,865.0	6,039.3	142.7	361.2	84.0

¹ Source: Form EIA-759.

Table 6. Ohio Electricity Consumption¹²
September 1987 - August 1989
(Thousand MWH)

	September	October	November	December	January	February	March	April	May	June	July	August	Total
Residential													
1988-89	2,349	2,224	2,622	3,196	3,408	3,076	3,031	2,519	2,300	2,456	3,067	2,846	33,094
1987-88	2,403	2,163	2,338	2,947	3,640	3,156	2,930	2,413	2,152	2,491	3,185	3,449	33,267
% Change	-2%	3%	12%	8%	-6%	-3%	3%	4%	7%	-1%	-4%	-17%	1%
Commercial													
1988-89	2,320	2,104	2,038	2,220	2,322	2,189	2,249	2,097	2,122	2,360	2,668	2,585	27,274
1987-88	2,250	2,015	1,931	2,115	2,294	2,209	2,171	1,985	1,991	2,340	2,594	2,702	26,585
% Change	3%	4%	6%	5%	1%	-1%	3%	6%	7%	1%	3%	-4%	3%
Industrial													
1988-89	4,221	4,275	4,221	4,080	4,187	4,207	4,269	4,164	4,300	4,214	4,086	4,310	50,534
1987-88	4,034	4,039	3,960	3,988	4,017	4,259	4,274	4,092	4,231	4,221	4,146	4,408	49,669
% Change	5%	6%	7%	2%	4%	-1%	0%	2%	2%	0%	-1%	-2%	2%
Other													
1988-89	431	405	380	412	414	355	389	359	369	383	388	387	4,672
1987-88	455	463	470	500	530	510	517	449	467	503	527	507	5,898
% Change	-5%	-13%	-19%	-18%	-22%	-30%	-25%	-20%	-21%	-24%	-26%	-24%	-21%
Total													
1988-89	9,321	9,008	9,261	9,908	10,331	9,827	9,938	9,139	9,091	9,413	10,209	10,128	115,574
1987-88	9,142	8,680	8,699	9,550	10,481	10,134	9,892	8,939	8,841	9,555	10,452	11,066	115,431
% Change	2%	4%	6%	4%	-1%	-3%	0%	2%	3%	-1%	-2%	-8%	0%

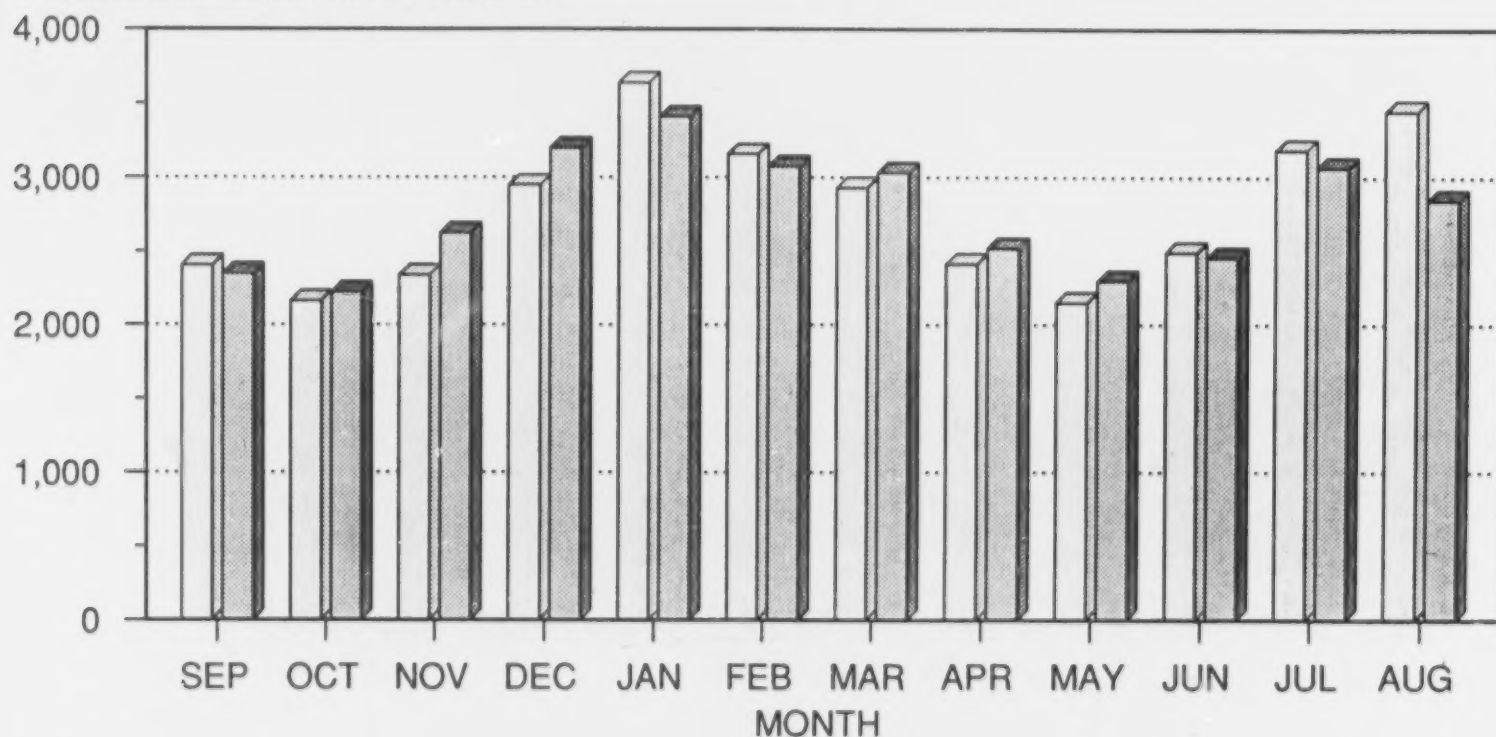
1 Source: Ohio Electric Utility Institute.

2 Figures do not include Buckeye Power and OVEC.

FIGURE 5-A. OHIO RESIDENTIAL ELECTRICITY CONSUMPTION
1987 - 1988 VS. 1988 - 1989

12

THOUSAND MEGAWATT-HOURS



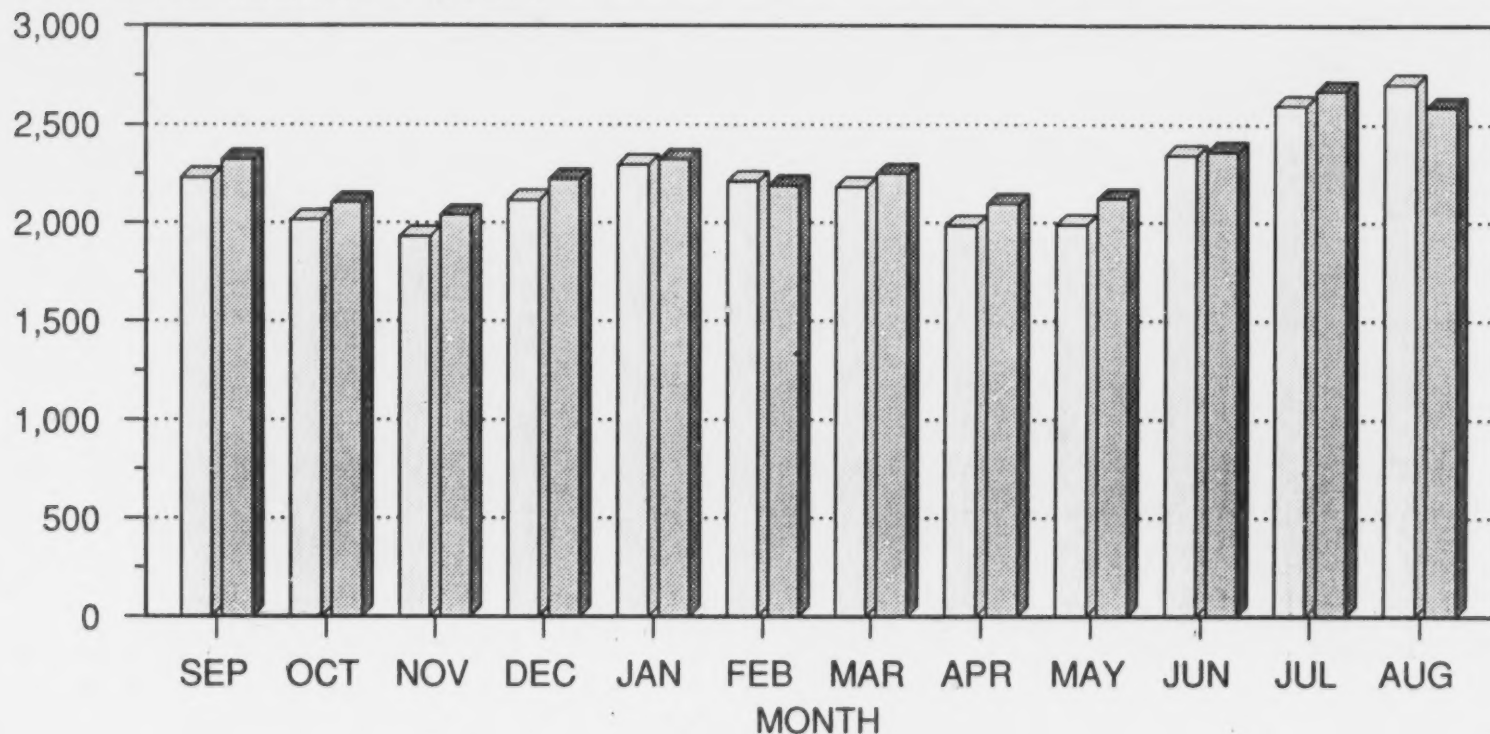
1 Source: Table 6.

2 Does not include Buckeye Power.

1987-1988 1988-1989

FIGURE 5-B. OHIO COMMERCIAL ELECTRICITY CONSUMPTION^{1 2}
1987 - 1988 VS. 1988 - 1989

THOUSAND MEGAWATT-HOURS

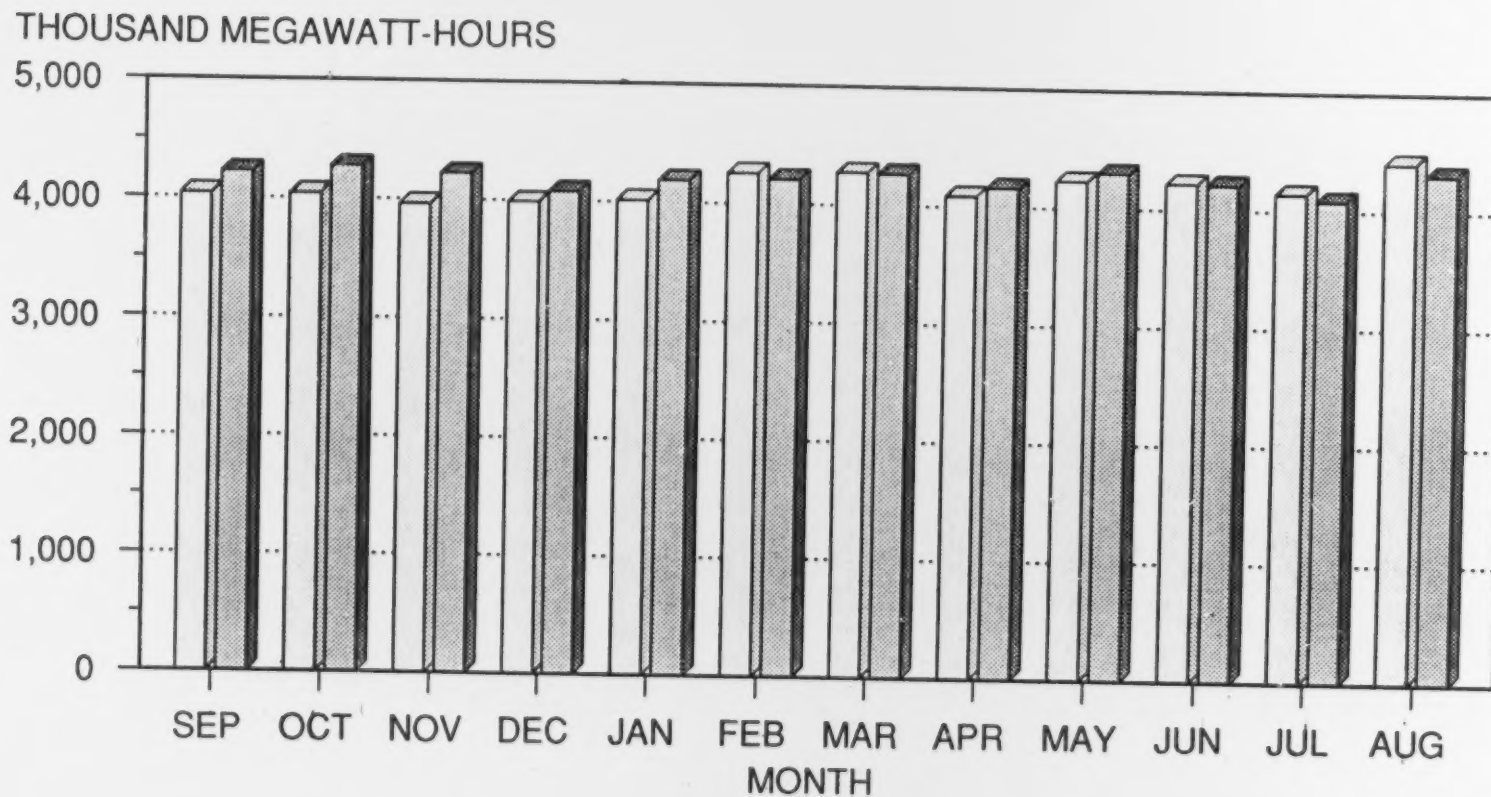


1 Source: Table 6.

2 Does not include Buckeye Power.

1987-1988 1988-1989

FIGURE 5-C. OHIO INDUSTRIAL ELECTRICITY CONSUMPTION^{1 2}
1987 - 1988 VS. 1988 - 1989

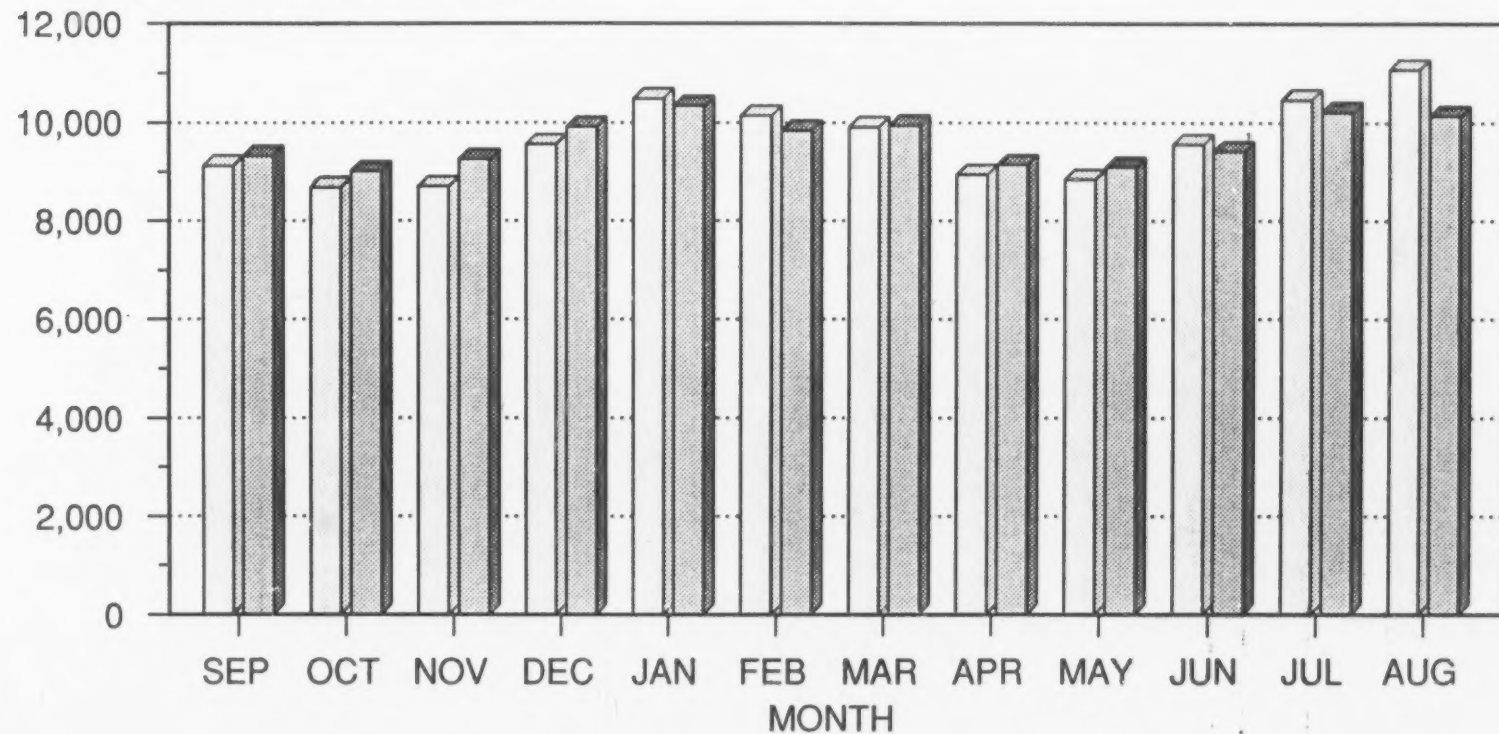


1 Source: Table 6.

2 Does not include Buckeye Power and OVEC.

FIGURE 5-D. OHIO TOTAL ELECTRICITY CONSUMPTION^{1 2}
1987 - 1988 VS. 1988 - 1989

THOUSAND MEGAWATT-HOURS



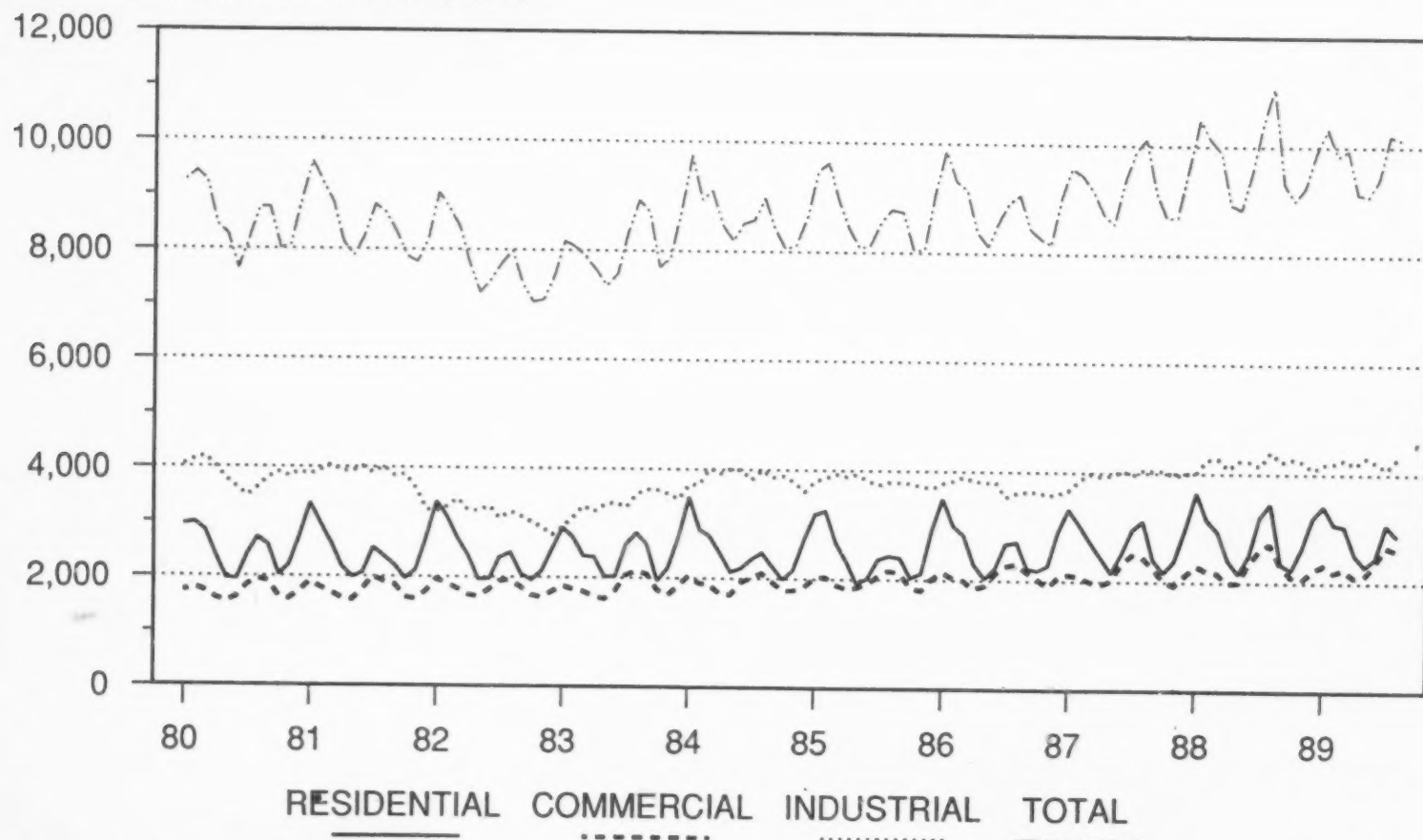
1 Source: Table 6.

2 Does not include Buckeye Power and OVEC.

1987-1988 1988-1989

FIGURE 5-E. MONTHLY ELECTRICITY CONSUMPTION^{1 2}
(JANUARY 1980 - AUGUST 1989)

THOUSAND MEGAWATT-HOURS



1 Source: Ohio Electric Utility Institute.

2 Does not include Buckeye Power and OVEC.

**Table 7-A. Ohio Electric Utilities' Projected Deliveries, Consumption,
and Stocks of Coal for Electricity Generation¹, 1989-1990
(1000 Short Tons)**

	November	December	January	February	March	April	May	June	July	August	September	October	Total
Allegheny Power System													
Deliveries	1,657	1,594	1,488	1,498	1,505	1,419	1,395	1,361	1,342	1,414	1,475	1,450	17,598
Consumption	1,387	1,504	1,602	1,443	1,522	1,350	1,343	1,367	1,449	1,481	1,385	1,404	17,237
Stocks	2,362	2,452	2,338	2,393	2,376	2,445	2,497	2,491	2,384	2,317	2,407	2,453	
American Electric Power													
Deliveries	4,306	4,511	4,464	4,252	4,289	3,982	4,125	3,788	3,678	4,198	4,024	4,215	49,832
Consumption	3,568	4,108	4,660	4,153	4,121	3,697	3,624	3,887	4,223	4,318	3,957	3,879	48,195
Stocks	7,993	8,396	8,200	8,299	8,467	8,752	9,253	9,154	8,609	8,489	8,556	8,892	
Buckeye Power Inc.													
Deliveries	190	167	180	175	190	163	180	146	159	187	169	170	2,076
Consumption	128	162	205	189	183	133	133	132	191	195	202	177	2,030
Stocks	285	290	265	251	258	288	335	349	317	309	276	269	
Cincinnati Gas & Electric													
Deliveries	550	602	698	618	526	495	483	543	627	638	526	519	6,825
Consumption	512	564	660	581	527	496	483	543	637	637	527	518	6,685
Stocks	888	926	964	1,001	1,000	999	999	999	989	990	989	990	
Cleveland Electric Ill													
Deliveries	329	347	348	435	454	439	439	361	389	375	436	487	4,839
Consumption	329	347	359	435	454	439	439	361	389	375	436	487	4,850
Stocks	446	446	435	435	435	435	435	435	435	435	435	435	
Dayton Power & Light Co.													
Deliveries	690	695	717	654	635	621	608	618	680	665	582	525	7,690
Consumption	690	695	742	654	635	621	608	618	680	665	582	525	7,715
Stocks	1,179	1,179	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	1,154	
Ohio Edison System													
Deliveries	730	730	704	693	674	642	656	630	679	692	751	809	8,390
Consumption	549	594	746	662	670	642	656	630	680	692	760	797	8,078
Stocks	1,105	1,241	1,199	1,230	1,234	1,234	1,234	1,234	1,233	1,233	1,224	1,236	
Ohio Valley Electric Corp.													
Deliveries	716	782	701	563	589	576	610	636	689	692	636	642	7,832
Consumption	643	655	632	563	589	576	610	636	689	692	636	642	7,563
Stocks	1,039	1,166	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	1,235	
Toledo Edison Co.													
Deliveries	80	90	107	119	128	113	118	79	97	94	115	104	1,244
Consumption	87	96	113	119	128	113	122	80	100	94	115	104	1,271
Stocks	189	183	177	177	177	177	173	172	169	169	169	169	

¹ Source: PUCO Form SE-3.

Table 7-B. Ohio Electric Utilities' Projected Deliveries, Consumption, and Stocks of Oil for Electricity Consumption¹, 1989-1990
(1000 Bbls)

	November	December	January	February	March	April	May	June	July	August	September	October	Total
Allegheny Power System													
Deliveries	0	0	0	0	0	0	0	0	0	0	0	0	0
Consumption	0	0	0	0	0	0	0	0	0	0	0	0	0
Stocks	0	0	0	0	0	0	0	0	0	0	0	0	0
American Electric Power													
Deliveries	59	52	43	45	42	36	43	42	45	43	42	45	537
Consumption	59	52	43	45	42	36	43	42	45	43	42	45	537
Stocks	242	242	242	242	242	242	242	242	242	242	242	242	537
Buckeye Power Inc.													
Deliveries	2	2	2	2	2	2	2	2	2	2	1	2	23
Consumption	2	2	2	2	2	2	2	2	2	2	1	2	23
Stocks	12	12	12	12	12	12	12	12	12	12	12	12	23
Cleveland Electric Ill.													
Deliveries	7	7	25	60	34	19	23	14	18	18	30	38	293
Consumption	7	7	25	60	34	19	23	14	18	18	30	38	293
Stocks	136	136	136	136	136	136	136	136	136	136	136	136	293
Cincinnati Gas & Electric													
Deliveries	8	10	18	10	10	8	8	8	18	10	20	10	138
Consumption	5	9	18	10	11	9	6	7	18	14	19	9	135
Stocks	76	77	77	77	76	75	77	78	78	74	75	76	135
Dayton Power & Light Co.													
Deliveries	1	0	0	0	72	1	1	0	0	0	49	0	124
Consumption	12	9	8	5	15	6	1	5	16	6	16	51	151
Stocks	167	158	150	145	202	196	196	190	174	169	202	151	151
Ohio Edison System													
Deliveries	3	3	0	2	1	1	0	2	2	2	1	3	20
Consumption	3	3	0	2	1	1	0	2	2	2	1	3	20
Stocks	38	38	38	38	38	38	38	38	38	38	38	38	20
Ohio Valley Electric Corp.													
Deliveries	2	2	2	2	2	2	2	2	2	2	2	2	20
Consumption	2	2	2	2	2	2	2	2	2	2	2	2	20
Stocks	6	6	6	6	6	6	6	6	6	6	6	6	20
Toledo Edison Co.													
Deliveries	1	1	5	11	6	3	5	3	4	4	7	7	57
Consumption	1	1	5	11	6	3	5	3	4	4	7	7	57
Stocks	6	6	6	6	6	6	6	6	6	6	6	6	57

¹ Source: ODOE Form SE13.

Table 7-C. Electric Utilities' Generation Forecast, Fuel Assessment and Inventory Model¹
(November 1989 - October 1990)

	November	December	January	February	March	April	May	June	July	August	September	October	Total
Allegheny Power System													
DEMAND FORECAST (GW11) EST DEMAND GEN BY COAL	3566	3893	4137	3739	3934	3494	3480	3530	3736	3826	3582	3624	44541
PROJ DAILY CONSUMPTION COAL (1000 TONS)	46	49	52	52	49	45	43	46	47	48	46	45	
COAL DELIVERIES IN 1000 TONS	1657	1594	1488	1498	1505	1419	1395	1361	1342	1414	1475	1450	17598
END OF MONTH STOCK COAL (1000 TONS)	2362	2452	2338	2393	2376	2445	2497	2491	2384	2317	2407	2453	
NUMBER OF DAYS SUPPLY COAL	51	51	45	46	48	54	58	55	51	48	52	54	

American Electric Power Company													
DEMAND FORECAST (GW11) EST DEMAND GEN BY COAL	7955	9233	10569	9454	9256	8229	8009	8726	9568	9804	9082	8938	108823
PROJ DAILY CONSUMPTION COAL (1000 TONS)	119	133	150	148	133	123	117	130	136	139	132	125	
COAL DELIVERIES IN 1000 TONS	4306	4511	4464	4252	4289	3982	4125	3788	3678	4198	4024	4215	49832
END OF MONTH STOCK COAL (1000 TONS)	7993	8396	8200	8299	8467	8752	9253	9154	8609	8489	8556	8892	
NUMBER OF DAYS SUPPLY COAL	67	63	55	56	64	71	79	71	63	61	65	71	

Cincinnati Gas & Electric Company													
DEMAND FORECAST (GW11) EST DEMAND GEN BY COAL	908	1276	1525	1350	1206	1139	1108	1247	1470	1478	1213	1226	15146
PROJ DAILY CONSUMPTION COAL (1000 TONS)	17	18	21	21	17	17	16	18	21	21	18	17	
COAL DELIVERIES IN 1000 TONS	550	602	698	618	526	495	483	543	627	638	526	519	6825
END OF MONTH STOCK COAL (1000 TONS)	888	926	964	1001	1000	999	999	999	989	990	989	990	
NUMBER OF DAYS SUPPLY COAL	52	51	45	48	59	60	64	55	48	48	56	59	

¹ Source: PUCO Form SE-3.

Table 7-C. Electric Utilities' Generation Forecast, Fuel Assessment and Inventory Model²
(November 1989 - October 1990)

	November	December	January	February	March	April	May	June	July	August	September	October	Total
Cleveland Electric Illuminating Company													
DEMAND FORECAST (GWH) EST DEMAND GEN BY COAL	743	812	824	1035	1072	1044	1047	852	916	885	1045	1174	11449
PROJ DAILY CONSUMPTION COAL (1000 TONS)	11	11	12	16	15	15	14	12	13	12	15	16	
COAL DELIVERIES IN 1000 TONS	329	347	348	435	454	439	439	361	389	375	436	487	4839
END OF MONTH STOCK COAL (1000 TONS)	446	446	435	435	435	435	435	435	435	435	435	435	
NUMBER OF DAYS SUPPLY COAL	41	40	38	28	30	30	31	36	35	36	30	28	

Dayton Power & Light Company													
DEMAND FORECAST (GWH) EST DEMAND GEN BY COAL	1641	1650	1773	1561	1514	1477	1412	1446	1600	1565	1371	1249	18259
PROJ DAILY CONSUMPTION COAL (1000 TONS)	23	22	24	23	20	21	20	21	22	21	19	17	
COAL DELIVERIES IN 1000 TONS	690	695	717	654	635	621	608	618	680	665	582	525	7690
END OF MONTH STOCK COAL (1000 TONS)	1179	1179	1154	1154	1154	1154	1154	1154	1154	1154	1154	1154	
NUMBER OF DAYS SUPPLY COAL	51	53	48	49	56	56	59	56	53	54	59	68	

Ohio Edison System													
DEMAND FORECAST (GWH) EST DEMAND GEN BY COAL	1261	1359	1753	1537	1528	1489	1528	1464	1576	1618	1757	1828	18698
PROJ DAILY CONSUMPTION COAL (1000 TONS)	18	19	24	24	22	21	21	21	22	22	25	26	
COAL DELIVERIES IN 1000 TONS	730	730	704	693	674	642	656	630	679	692	751	809	8390
END OF MONTH STOCK COAL (1000 TONS)	1105	1241	1199	1230	1234	1234	1234	1234	1233	1233	1224	1236	
NUMBER OF DAYS SUPPLY COAL	60	65	50	52	57	58	58	59	56	55	48	48	

Table 7-C. Electric Utilities' Generation Forecast, Fuel Assessment and Inventory Model³
(November 1989 - October 1990)

	November	December	January	February	March	April	May	June	July	August	September	October	Total
Ohio Valley Electric Corporation													
DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL	1523	1588	1521	1362	1439	1394	1462	1472	1608	1601	1495	1538	18003
PROJ DAILY CONSUMPTION COAL (1000 TONS)	21	21	20	20	19	19	20	21	22	22	21	21	
COAL DELIVERIES IN 1000 TONS	716	782	701	563	589	576	610	636	689	692	636	642	7832
END OF MONTH STOCK COAL (1000 TONS)	1039	1166	1235	1235	1235	1235	1235	1235	1235	1235	1235	1235	
NUMBER OF DAYS SUPPLY COAL	48	55	61	61	65	64	63	58	56	55	58	60	
Toledo Edison Company													
DEMAND FORECAST(GWH) EST DEMAND GEN BY COAL	234	264	300	316	344	313	329	206	264	245	304	285	3404
PROJ DAILY CONSUMPTION COAL (1000 TONS)	3	3	4	4	4	4	4	3	3	3	4	3	
COAL DELIVERIES IN 1000 TONS	80	90	107	119	128	113	118	79	97	94	115	104	1244
END OF MONTH STOCK COAL (1000 TONS)	189	169	173	186	191	176	171	152	160	161	182	197	
NUMBER OF DAYS SUPPLY COAL	65	59	49	42	43	47	44	65	52	56	44	50	

³ Source: PUCO Form SE-3.

NATURAL GAS

Natural gas distribution companies operating in Ohio are classified into two categories with respect to their reporting requirements. Eight major companies, Cincinnati Gas and Electric, Columbia Gas of Ohio, Dayton Power and Light, East Ohio Gas, National Gas and Oil, Ohio Gas, River Gas, and West Ohio Gas, report to the PUCO, Division of Forecasting every month. Eighteen small utilities and two municipal utilities report twice a year. This section is based upon the most recent reports of these utilities.

3.1 Supplies and Distribution

3.1.1 Sources of Supply

The major sources of natural gas supplies to the State of Ohio are presented in Table 8, and the quantities supplied are shown graphically in Figure 6. Table 9 presents the total natural gas requirements of each of the Ohio utilities and the State total.

From September 1988 through August 1989, the eight major gas distribution companies of Ohio, which together accounted for 98.17 percent of the reported natural gas distribution in the State, procured 597,077 MMCF of natural gas to meet Ohio's requirements. This represents a 0.58 percent decrease in the procurement of natural gas to Ohio compared to the same period in the previous twelve months. This slight decrease in procurement may be due in part to slightly warmer weather conditions during the winter heating season and a slowing economy in the latter part of 1989.

Of the 597,077 MMCF of natural gas procured by these companies, interstate gas purchases comprised 91.02 percent. Purchases of Ohio gas comprised the remaining 8.98 percent of the total. The 53,584 MMCF of Ohio production of natural gas purchased by the eight major gas utilities from September 1988 through August 1989 represents a 4.98 percent decrease in their purchases of Ohio's product from the preceding annual period.

Spot market purchases of interstate gas is the major source of supply for Ohio accounting for 51% of total supplies. Purchases from Columbia Gas Transmission Corporation and Consolidated Gas Supply Corporation provided an additional 24.95 percent of the natural gas procured by the eight major Ohio gas distribution companies from September 1988 through August 1989.

5.1.2 Distribution

Service shares of the gas distribution companies operating in Ohio are presented in Table 9 for the annual period September 1988 through August 1989. During this period, the four large distribution companies - Cincinnati Gas and Electric, Columbia Gas of Ohio, Dayton Power and Light and East Ohio Gas - jointly distributed 94.20 percent of the reported natural gas requirements of the State. The four intermediate sized companies - National Gas and Oil, Ohio Gas, River Gas and West Ohio Gas - distributed an additional 3.97 percent. The remaining 1.83 percent of the reported natural gas requirements were distributed by 18 small utilities and two municipal utilities. Total requirements of 604,763 MMCF reported in Table 9 represents an decrease of approximately 0.78 percent in the distribution of natural gas compared to the same period last year.

The behavior of monthly sector requirements between September 1988 and August 1989 versus the preceding annual period are comparatively presented in Figures 7-A through 7-C. As these Figures illustrate, residential sector requirements increased 1.6 percent, commercial sector requirements increased 0.7 percent, and industrial sector requirements decreased 8.1 percent (this does not include industrial requirements met through the self-help program or other direct purchases by industrial end-users, i.e. non-tariff sales). Figure 7-D combines the three sectors to comprise the total consumption for the State which, as mentioned above, decreased 1.1 percent from the previous year. Figure 7-E reveals the monthly relationship of each sector to the total requirement trend, from January... 1980 through August 1989.

3.2 Historical Behavior of Interstate Natural Gas Supplies and Sectoral End-Use Requirements

3.2.1 Interstate Natural Gas Supplies

Until 1978, wellhead prices paid by interstate transmission companies to natural gas producers were under federal control. Starting in the early seventies, and especially after the OPEC oil price increase of 1973, the federally-regulated gas supply prices for interstate commerce lagged behind the unregulated prices which the product commanded at the wellhead for intrastate commerce. Consequently, there were supply shortages in the interstate natural gas markets during the heating season, whereas producing States such as Texas and Louisiana experienced an overabundance of supplies at all times.

In Ohio, which was about 90 percent dependent on interstate gas, a ban was imposed upon new customer hook-ups in 1972 and remained in effect until 1978. Similarly, base allocations of lower priority industrial and commercial customers were curtailed between 1973 and 1978. During the winter of 1976-1977, many interstate pipeline companies had to heavily curtail base allocations of their industrial customers due to lack of interstate gas supplies.

The Natural Gas Policy Act (NGPA) of 1978, deregulated some gas prices immediately, and legislated a phased decontrol of prices for many categories of natural gas by 1985. Pursuant to the passage of the NGPA, relatively unfettered increases in interstate gas prices have stimulated new and more costly gas production from deep wells, thus increasing available supplies. However, many pipeline companies overreacted to market conditions by entering into extensive take or pay contracts for the newly found and expensive deep gas reserves.

Increasing energy prices from 1972 on, induced intensive conservation efforts on the part of consumers, as well as many state, federal and private agencies. As a result of these price induced conservation efforts, per customer energy consumption in general, and per customer natural gas consumption in particular, have declined almost continuously since 1972-1973. With the additional increases in natural gas costs of interstate pipeline companies between 1978-1982, the price

of natural gas supplied by them rose well above the market equilibrium level dictated by the prevailing per customer demands and the enhanced availability of supplies.

This situation led to the development of a spot market for natural gas, where the price for large volume purchases was substantially lower than the price that interstate natural gas companies could offer due to their take-or-pay costs which required payment regardless of whether or not they actually distributed the gas. Consequently, increasing numbers of industrial customers obtained their requirements through direct purchases at the wellhead or through the spot market. The interstate pipelines and natural gas distribution utilities are being increasingly relegated to the position of common carriers of the natural gas of others. Recent FERC rulings have been supportive of this opening up of a regulated market to competitive pressures.

Since 1983, declining per customer requirements, enhanced supplies, and the thriving spot market have induced a downturn in natural gas prices to end-users in all sectors. In the last couple of years, natural gas prices have begun to level off. As the economy continues to operate near full employment levels, we may expect to see an upward trend in natural gas prices.

3.2.2 Annual Sectoral End-Use Requirements

Long-term trends in annual sector natural gas prices and sector natural gas requirements for Ohio are presented in Tables 10 and 11, and Appendix B, Figures B-5 through B-8. It is clear from these figures that the dynamic behavior of natural gas markets in Ohio have been characterized by increasing price trends from 1973 to 1983 and declining requirement trends since 1973.

As discussed in the preceding section, between 1970 and 1983, in response to a series of worldwide price shocks including the OPEC oil price increases of 1973 and 1978, the price of natural gas in Ohio increased nearly sevenfold in the residential and commercial sectors, and ninefold in the industrial sector (see Table 10). These price increases far exceeded the increase in the rate of inflation (see Table 11), or the rate of increase of the gross state product. Such significant and sustained increases in sector prices have induced significant and sustained

conservation efforts among sector customers, which in turn have been translated into declining sector requirement trends.

In recent years industrial non-tariff sales, such as self-help procurements, have come to account for an ever increasing share of the total industrial requirement in Ohio (see Table 15). This is due to the fact that non-tariff sales prices are determined in the spot market and are lower than the regulated prices for industrial tariff sales. The latter category of sales must reflect fully the fixed and variable costs of gas procurement and distribution, including take or pay contract costs and distribution company revenue requirements.

It should be noted, however, that the declining trends in industrial sector requirements represent not only the net outcomes of price induced energy conservation and fuel switching programs, but also a permanent loss in industrial capacity, especially in the older and more energy intensive manufacturing industries in Ohio.

3.2.3 Monthly Sectoral End-Use Requirements

The monthly time series behavior of residential, commercial, industrial and total natural gas requirements in Ohio from January 1980 through October 1989, along with the Division's independent forecasts for November 1989 through October 1990 are displayed in Appendix B, Figures B-1 through B-4. The seasonal variations in residential and commercial requirements can easily be discerned from these Figures as natural gas is the primary source of space heating in Ohio. Demand peaks in all sectors during the heating season and falls off during the cooling season.

3.3 Utility Forecasts: Consolidated Results and Twelve Month Outlook

3.3.1 Consolidated Results

Aggregate supply and demand projections of the eight major utilities, as

presented in Table 12 and Figure 8, indicate a 0.0 percent annual shortage of natural gas supplies over requirements. All eight utilities project supply to be exactly equal to requirements during the 1989-1990 heating season. Supply and demand projections of the individual utilities, as submitted in their "Monthly Reports of Supply and Demand of Natural Gas", are summarized in Appendix B, Table B-9.

Table 13 shows the actual aggregate monthly sector requirements for the eight major utilities from September 1988 through August 1989, along with the utility companies' consolidated projections for the September 1989 through August 1990 period. The companies consolidated forecast projects decreases in demand for the residential and industrial sectors and a slight increase for the commercial sector. Figure 9 is a graphic presentation of the utilities' consolidated sector projections for the forecast period. Overall, the consolidated companies' forecast of total annual gas requirements shows a decrease of 0.2 percent relative to the same twelve month period last year.

Actual and company forecast aggregate supply of natural gas by source is displayed in Table 14. Total supplies are expected to decrease 0.8 percent over the previous twelve month period. The majority of this supply, roughly 80.4 percent, will continue to come from out-of-state sources. Spot market purchases are projected to account for 63.1 percent of total supplies. Columbia Gas Transmission Corporation is projected to supply an additional 5.2 percent of natural gas demand; while Consolidated Natural Gas is projected to supply 11.5 percent.

3.3.2 Twelve Month Outlook

On the basis of the utility companies' natural gas supply and sector requirement projections, the outlook for the next twelve months indicates no supply shortages in Ohio, under both normal and 10 percent colder than normal weather conditions.

The PUCO, Division of Forecasting will be monitoring developments in the supplies and requirements of natural gas throughout the rest of the year and will

take appropriate action if a critical situation develops. The prevailing conditions portend no shortages or curtailments of natural gas during the 1989-1990 heating season.

3.4 Division of Forecasting Independent Forecast

3.4.1 Methodology

The independent natural gas demand forecast prepared by the Division of Forecasting for the eight major gas utilities serving Ohio are based upon time series analyses of sector requirements for each individual month of the year, between January 1970 and August 1989, adjusted for long-term annual trends, severe climatic conditions and the business cycle.

Time series models, with adjustments, yield projections that possess better statistical properties, and are at least as accurate as alternative short-term forecasting techniques. They also offer the added flexibility of being able to produce updated forecasts which reflect and incorporate specific assumptions pertaining to the prevailing climatic and economic conditions every time the most recent actual monthly requirements are reported to the PUCO, Division of Forecasting. The utilization of an adjusted time series methodology is designed to provide a double check, thus reducing forecasting error for a more accurate and decisive diagnosis of energy requirements of the State.

3.4.2 Special Assumptions

The economic recovery experienced by Ohio is expected to level off throughout the forecasting horizon, with the unemployment rate remaining between 5.5 and 6.5 percent. Inflation is expected to hover between 4.5 and 5.5 percent. The long-term trend in natural gas prices has bottomed out and is expected to begin inching upward in the near future.

FERC order RM85-1, which allows greater access to competitively priced gas available on the spot market, will further diminish the volume of natural gas sales

to industrial customers by the utilities and increase the volume that is directly purchased by industrial customers from out-of-state sources. However, the long-term total consumption trends in the industrial sector are not expected to change significantly (i.e. the sum of tariff and non-tariff sales).

3.4.3 Results

The results obtained on the basis of the Division of Forecasting's independent forecast of sector requirements and the utility companies' forecasts of supplies are presented in Tables 16 through 20, for the 1989-1990 heating season. Summary results presented in Table 16 indicate a potential surplus of 2.6 percent for both normal weather conditions and in the case of a 10 percent colder than normal winter.

The Division of Forecasting's independent forecasts for the four major utilities are compared with each company's forecast for the period from September 1989 through August 1990 in Appendix B, Tables B-1 through B-4. The Division's forecasts of sector end-use gas requirements for Ohio are presented in Appendix B, Tables B-5 through B-8. These have been adjusted for the long-term historical trends observed in sector natural gas requirements in the State. Finally, for comparison, Appendix B, Table B-9 displays twelve month forecasts, produced monthly by each utility company and reported to the Division of Forecasting.

3.4.4 Long-Term Outlook

Any unexpected changes in the short-term behavior of residential and commercial requirements would mainly be associated with variations in the severity of the heating season and alterations in the long-term trends followed by natural gas prices. Since 1983, natural gas prices in Ohio have been declining in all sectors. Though there is currently an abundance of natural gas supplies nationwide, the drilling activity of new wells has dropped dramatically since 1985 and amount of reserves is a relatively uncertain estimate. It is expected, however, that no supply induced pressures shall come to bear on natural gas prices for the next 1 to 3 years. The price induced conservation efforts since 1972 have led to

dramatic declines in per customer natural gas consumption in the residential and commercial sectors. Further conservation efforts are bound to be more costly, and given the current level of natural gas prices, less cost effective in the short run. Consequently, the decline in per customer demands are expected to level off in the residential and commercial sectors. Combined with an industrial sector operating at near full employment capacity, there may actually be slight increases in total natural gas demand over the next 1 to 3 years, and a corresponding inching up in natural gas price levels. If significant supply induced pressures come to bear on the natural gas markets nationwide, then the increases in natural gas prices to the end-users could increase more substantially.

In recent years, as previously explained in section 3.2.1, industrial sales of natural gas by utility companies have decreased substantially. Part of this has been due to conservation, fuel switching and declining activity in the basic industries. Another important factor has been the emergence of the spot market for interstate gas purchases by large volume industrial customers. An increasing portion of this decline has also been the result of self-help programs administered by the PUCO and fuel oil displacement programs administered by the Federal Energy Regulatory Commission (FERC).

The State of Ohio's self-help program was initiated in 1974 to assist industrial customers whose tariff supplies of natural gas were threatened with curtailments. The program permits industrial concerns to purchase their own gas at the well head and have it transported directly to their location by a gas distribution company. Throughout the mid and late 1970's, industrial consumers paid unregulated prices to producers and contracted for delivery with the gas distribution companies, which charged a fee for transmission and were permitted receipt of up to 25 percent of the gas for their own customers.

Self-help gas emerged as a resource vital to the economic development of Ohio. Its cost advantage improves the competitive positions of participating industries. Also, self-help gas provides an additional market for Ohio gas producers and spurs competition in well head burnertip prices. In April 1983, in view of the prevailing abundance of natural gas surpluses, the PUCO amended the self-help rules to rescind distribution company privileges to acquire ownership shares of self-help gas. The difference in the cost of natural gas purchased through

interstate pipeline companies versus the cost of natural gas purchased on the spot market provides the current incentive for industrial customers to purchase their own gas at the wellhead.

Federally regulated marketing programs became significant in 1983 and have added to the loss of customers mainly in industrial tariffs. Fuel oil displacement, special marketing programs regulated by FERC, and Ohio's self-help program accounted for 75.70 percent of Ohio industrial gas use in 1988. Comparatively, these programs accounted for 76.14 percent of Ohio industrial natural gas use in 1987, and 64.21 percent in 1986.

The effective price discrimination between customer categories which is introduced into the gas market through special marketing programs should help Ohio's industry by making it possible for firms to take advantage of available input cost minimization opportunities. However, it also implies that a greater proportion of fixed costs involved in the procurement and distribution of natural gas will have to be born by industrial and other tariff customers. In fact, industrial tariff customers may disappear in the next decade if present trends continue. Therefore, the totality of these fixed costs may eventually be passed on to residential and commercial customers who would lack the ability to participate in these programs due to information costs, contract costs, or minimum volume requirements. The growth in non-tariff industrial sales in Ohio is documented in Table 15.

3.4.5 Emergency Response Capability

There have been no natural gas curtailments in Ohio since 1978, and neither Ohio natural gas utilities nor the gas pipeline companies project any curtailments through August 1990. However, in the event of a shortage, it is anticipated that the fuel-switching capability of industrial and large commercial users would be accelerated. Detailed emergency plans that describe strategies to respond to fuel supply shortfalls are on file at the PUCO, Division of Forecasting.

Table 8. Sources of Natural Gas Supplies to the Eight Major Gas Utilities¹
September 1988 - August 1989
(MMCF)

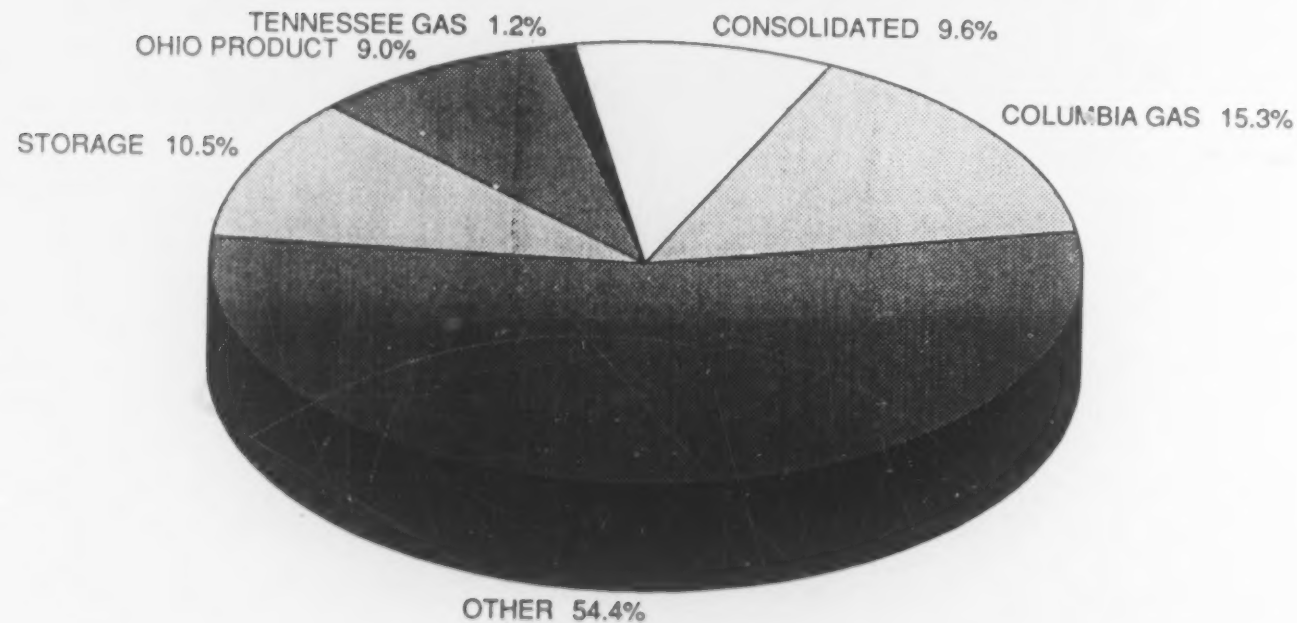
	Supply	Percent of Total	Rank
Columbia Gas Transmission Corp.	91,469	15.32	2
Consolidated Gas Supply Corp.	57,503	9.63	4
Lawrenceburg Gas	2	0.00	11
Michigan/Wisconsin Pipeline Co.	61	0.01	10
Panhandle Eastern Pipeline Co.	618	0.10	9
Tennessee Gas Pipeline Co.	7,066	1.18	6
Texas Eastern Transmission Corp.	2,938	0.49	8
Texas Gas Transmission Corp.	4,484	0.75	7
Storage/Propane ²	62,843	10.53	3
Other	316,509	53.01	1
Total Out-of-State	543,493	91.02	

Ohio Product	53,584	8.98	5
TOTAL	597,077	100.00	

¹ Source: PUCO Form SG-2.

² Gas withdrawn from storage is a source of supply during the accounting period under consideration.

**FIGURE 6. SOURCES OF NATURAL GAS SUPPLY¹
FOR EIGHT MAJOR GAS UTILITIES
(SEPTEMBER 1988 - AUGUST 1989)**



¹ Source: Table 8.

Table 9. Total Natural Gas Requirements of All Commercial Utilities in Ohio¹
September 1988 through August 1989
(MMCF)

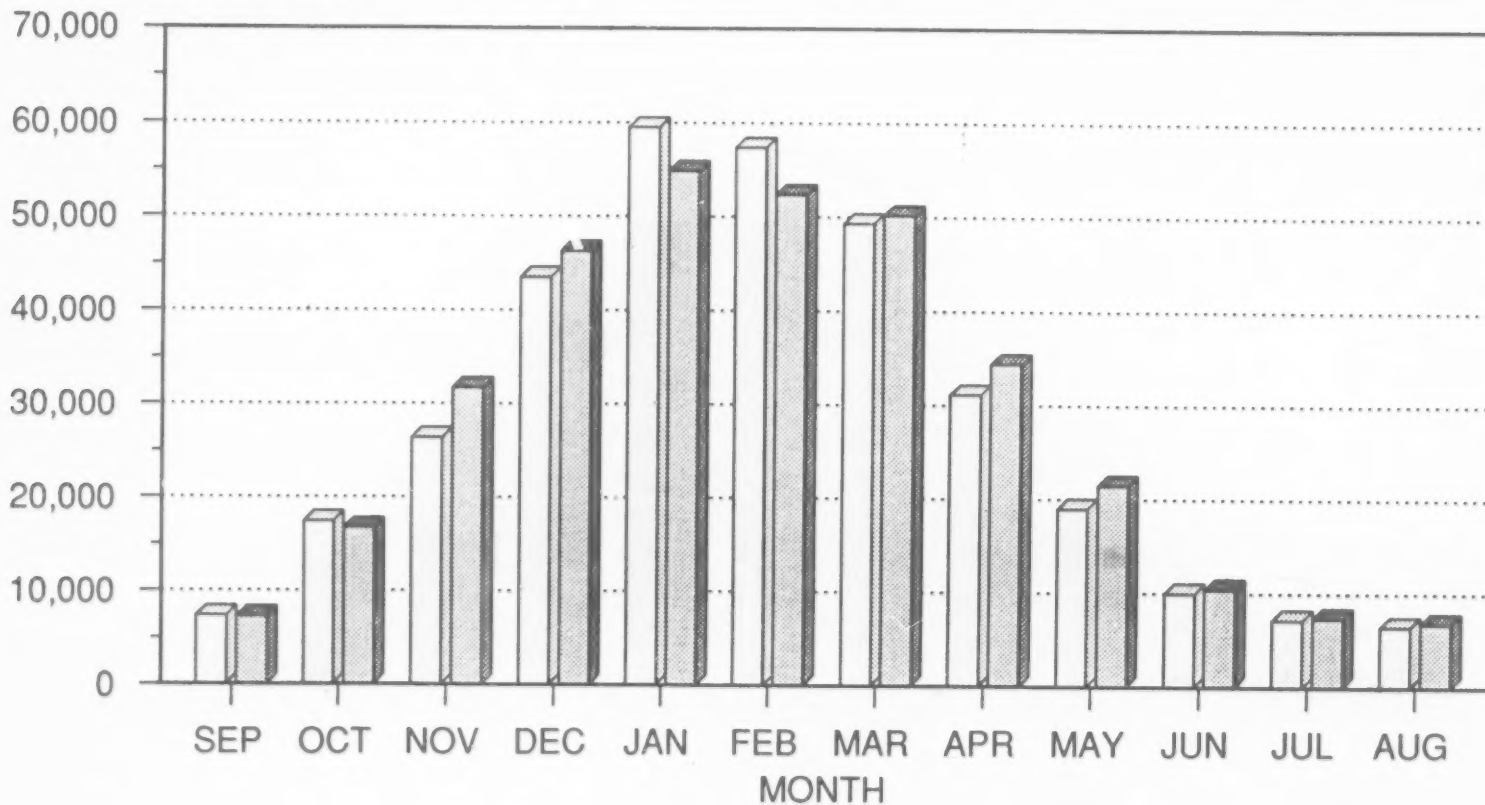
Company	Sales to All End Users	Storage ² (In)	Total Requirement (1+2)	Percent of Total Ohio Requirement
Cincinnati Gas and Electric Co.	70,595	0	70,595	11.67
Columbia Gas of Ohio	183,096	2,645	185,741	30.71
Dayton Power and Light Co.	48,875	0	48,875	8.08
East Ohio Gas Co.	207,692	56,827	264,519	43.74
National Gas and Oil Co.	3,008	620	3,628	0.60
Ohio Gas Co.	7,613	60	7,673	1.27
River Gas Co.	2,643	537	3,180	0.53
West Ohio Gas Co.	9,494	0	9,494	1.57
Total Eight Major Utilities	533,016	60,689	593,705	98.17
Total Small Utilities	5,818	0	5,818	0.96
Municipal Utilities	5,240	0	5,240	0.87
TOTAL	544,074	60,689	604,763	100.00

¹ Source: PUCO Form SG-2 and SG-4.

² Gas injected to storage is a requirement to be met by the State's natural gas utilities during the accounting period under consideration.

**FIGURE 7-A. OHIO RESIDENTIAL SECTOR NATURAL GAS¹
CONSUMPTION: 1987-1988 VS. 1988-1989**

MILLION CUBIC FEET

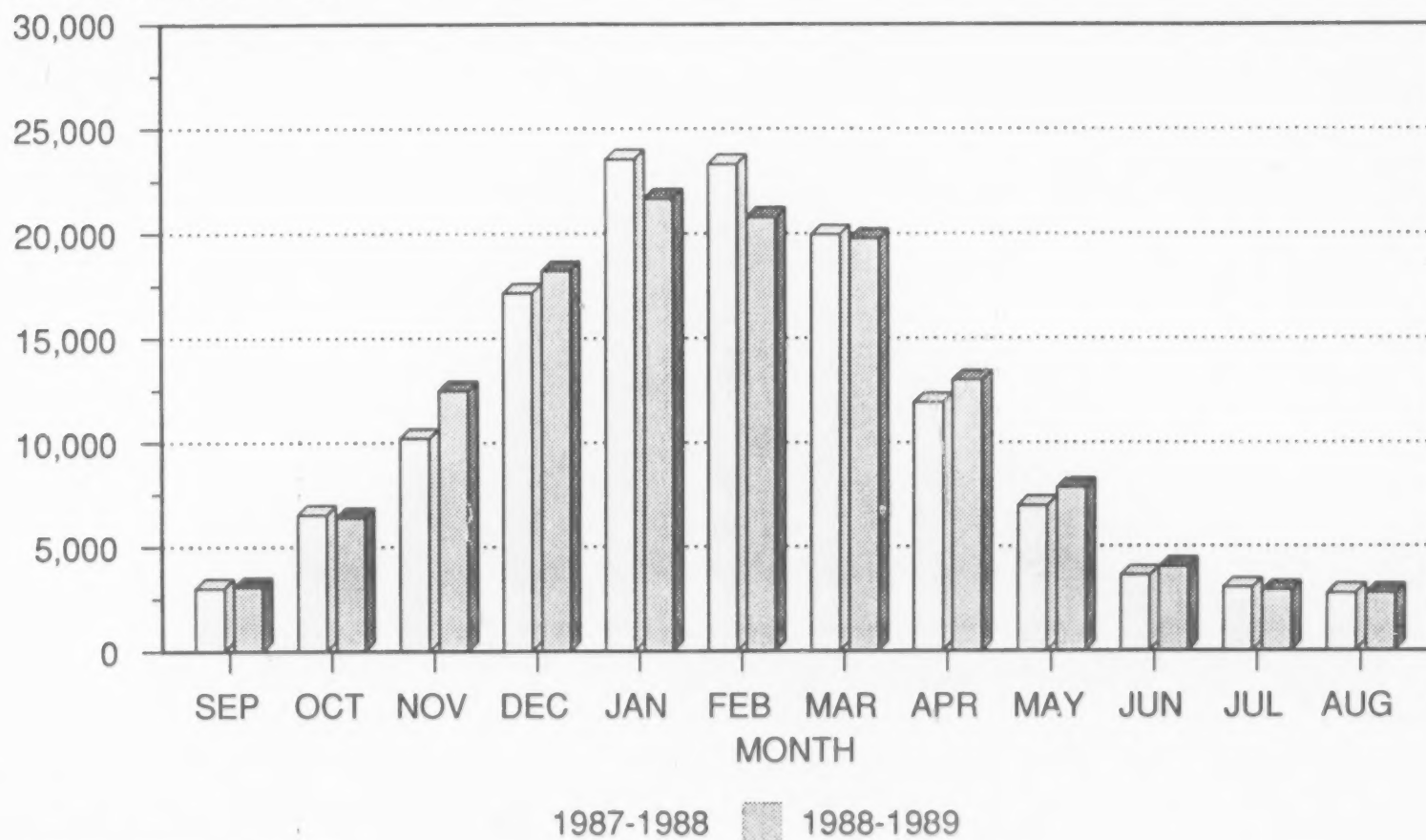


1987-1988 1988-1989

¹ Source: PUCO Form SG-1.

**FIGURE 7-B. OHIO COMMERCIAL SECTOR NATURAL GAS¹
CONSUMPTION: 1987-1988 VS. 1988-1989**

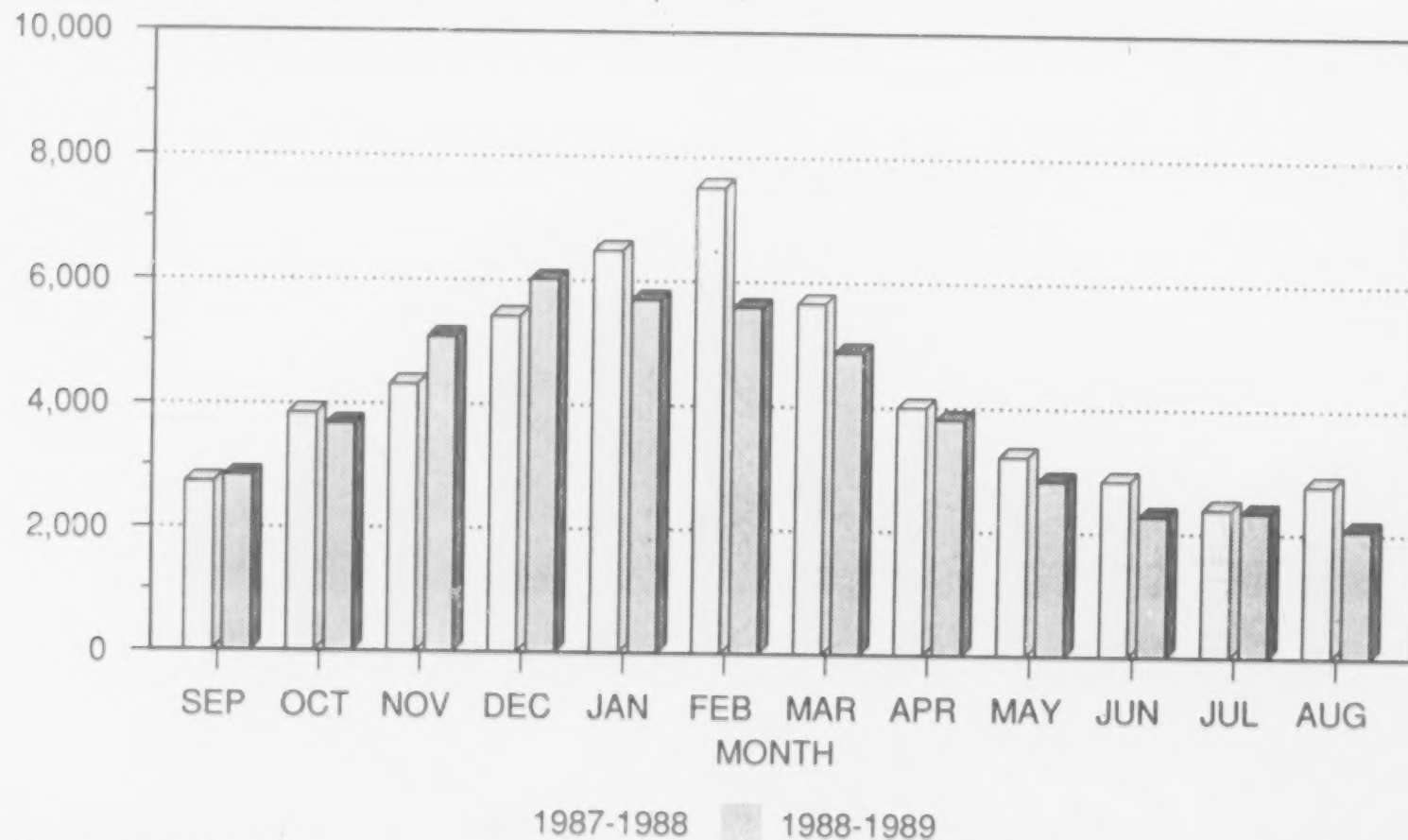
MILLION CUBIC FEET



¹ Source: PUCO Form SG-1.

**FIGURE 7-C. OHIO INDUSTRIAL SECTOR NATURAL GAS¹
CONSUMPTION: 1987-1988 VS. 1988-1989**

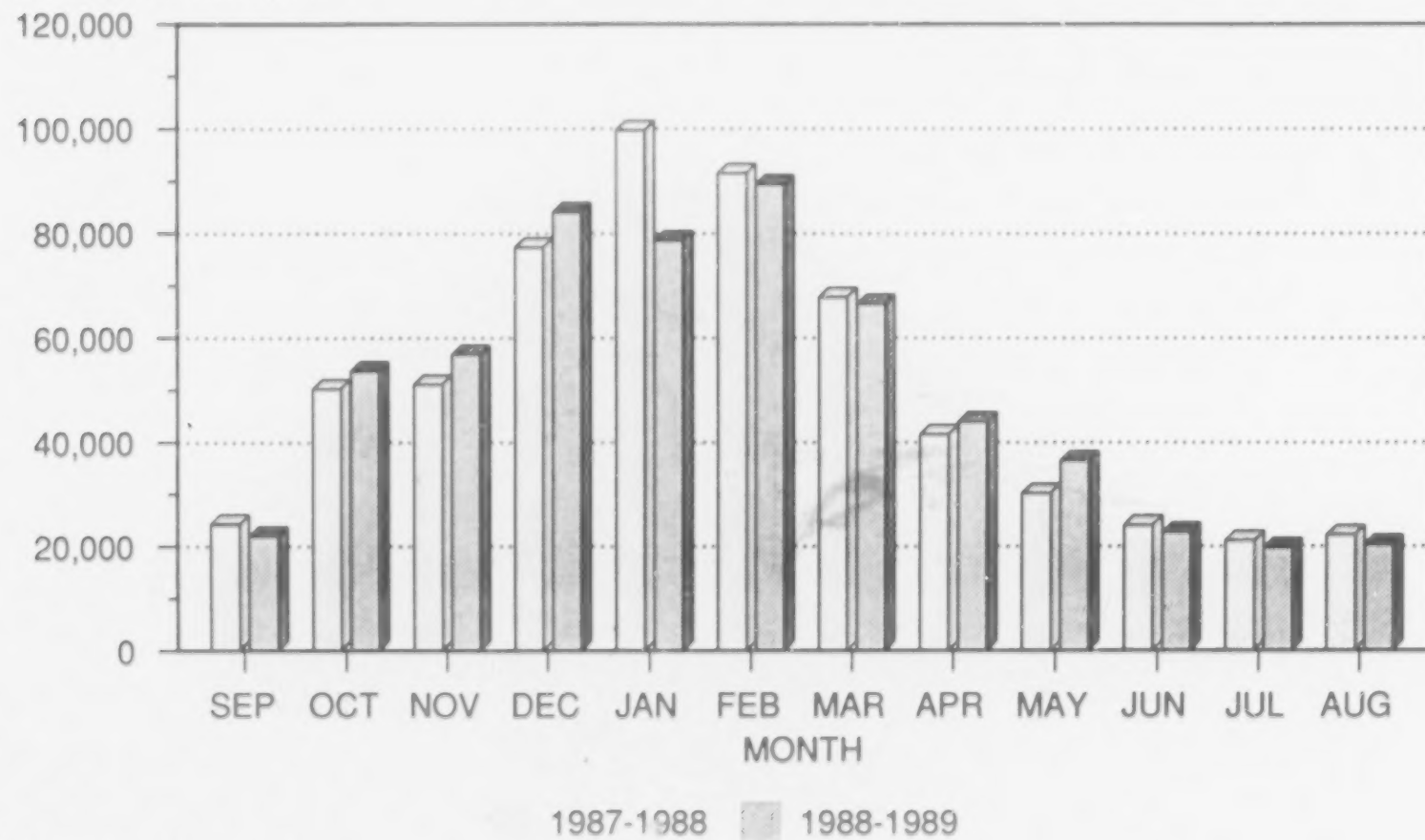
MILLION CUBIC FEET



¹ Source: PUCO Form SG-1.

FIGURE 7-D. TOTAL OHIO NATURAL GAS CONSUMPTION¹
1987-1988 VS. 1988-1989

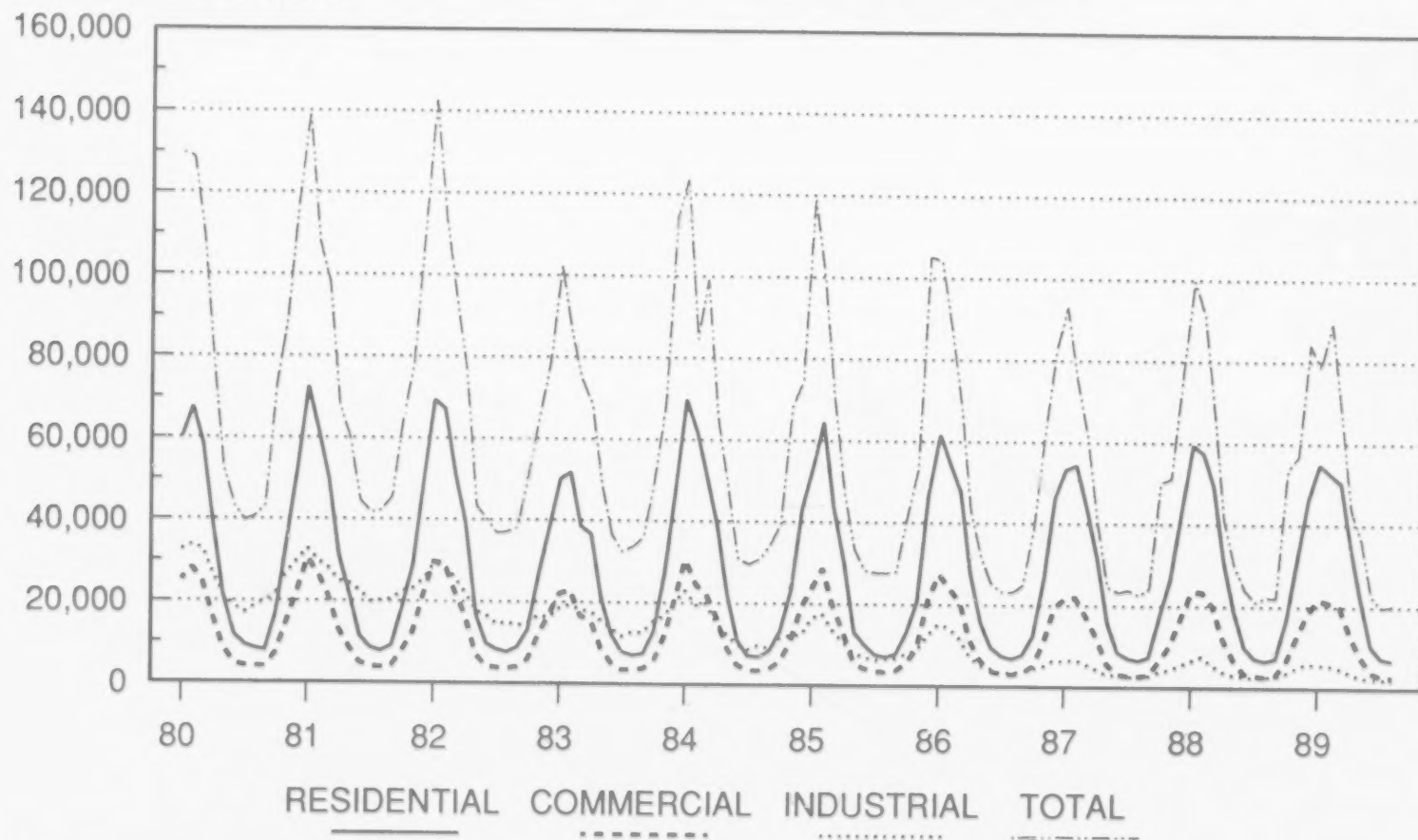
MILLION CUBIC FEET



¹ Source: PUCO Form SG-1.

FIGURE 7-E. MONTHLY GAS CONSUMPTION¹
(JANUARY 1980 - AUGUST 1989)

MILLION CUBIC FEET



¹ Source: Monthly Gas Report.

Table 10. Ohio Natural Gas Prices in Current Dollars¹
1970-1988
(\$ Per MMBTU)

<u>Year</u>	<u>Residential</u>	<u>Commercial</u>	<u>Industrial</u>
1970	0.84	0.73	0.52
1971	0.96	0.81	0.56
1972	1.02	0.86	0.62
1973	1.08	0.94	0.65
1974	1.23	1.07	0.85
1975	1.51	1.51	1.12
1976	1.79	1.63	1.43
1977	2.23	2.07	1.95
1978	2.43	2.24	2.05
1979	2.78	2.57	2.32
1980	3.45	3.23	2.97
1981	3.87	3.61	3.34
1982	4.80	4.53	4.20
1983	5.90	5.54	5.01
1984	5.86	5.49	4.87
1985	5.82	5.38	4.69
1986	5.53	5.12	4.47
1987	5.13	4.72	4.09
1988	5.07	4.67	3.99

¹ Source: American Gas Association, Gas Facts, 1970-1989.

Table 11. Ohio Natural Gas Prices in Constant Dollars¹
1970-1988
(\$ Per MMBTU)

<u>Year</u>	<u>Residential²</u>	<u>Commercial²</u>	<u>Industrial²</u>
1970	0.72	0.63	0.45
1971	0.78	0.67	0.47
1972	0.81	0.69	0.49
1973	0.81	0.71	0.46
1974	0.83	0.72	0.58
1975	0.94	0.84	0.69
1976	1.05	0.96	0.84
1977	1.23	1.14	1.07
1978	1.24	1.15	1.05
1979	1.28	1.18	1.07
1980	1.40	1.31	1.20
1981	1.42	1.34	1.25
1982	1.66	1.57	1.45
1983	1.98	1.86	1.68
1984	1.88	1.76	1.57
1985	1.81	1.67	1.46
1986	1.68	1.60	1.36
1987	1.51	1.39	1.20
1988	1.43	1.32	1.13

¹ Source: American Gas Association, Gas Facts, 1970-1989 and PUCO, Division of Forecasting.

² All prices are stated in terms of 1967 dollars.

**Table 12. Projected Aggregate Supply and Demand for Natural Gas
for the Eight Major Utilities¹
September 1989 - August 1990
(MMCF)**

Month	Supply	Demand	Deficiency ²	Percent Deficiency
September	24,102	24,102	0	0.00
October	40,386	40,386	0	0.00
November	59,686	59,686	0	0.00
December	81,128	81,128	0	0.00
January	94,411	94,411	0	0.00
February	83,693	83,693	0	0.00
March	67,208	67,208	0	0.00
April	41,670	41,670	0	0.00
May	33,915	33,915	0	0.00
June	22,405	22,405	0	0.00
July	22,030	22,030	0	0.00
August	21,592	21,592	0	0.00
TOTALS				
Summer ³	206,100	206,100	0	0.00
Winter ⁴	386,126	386,126	0	0.00
Annual	592,226	592,226	0	0.00

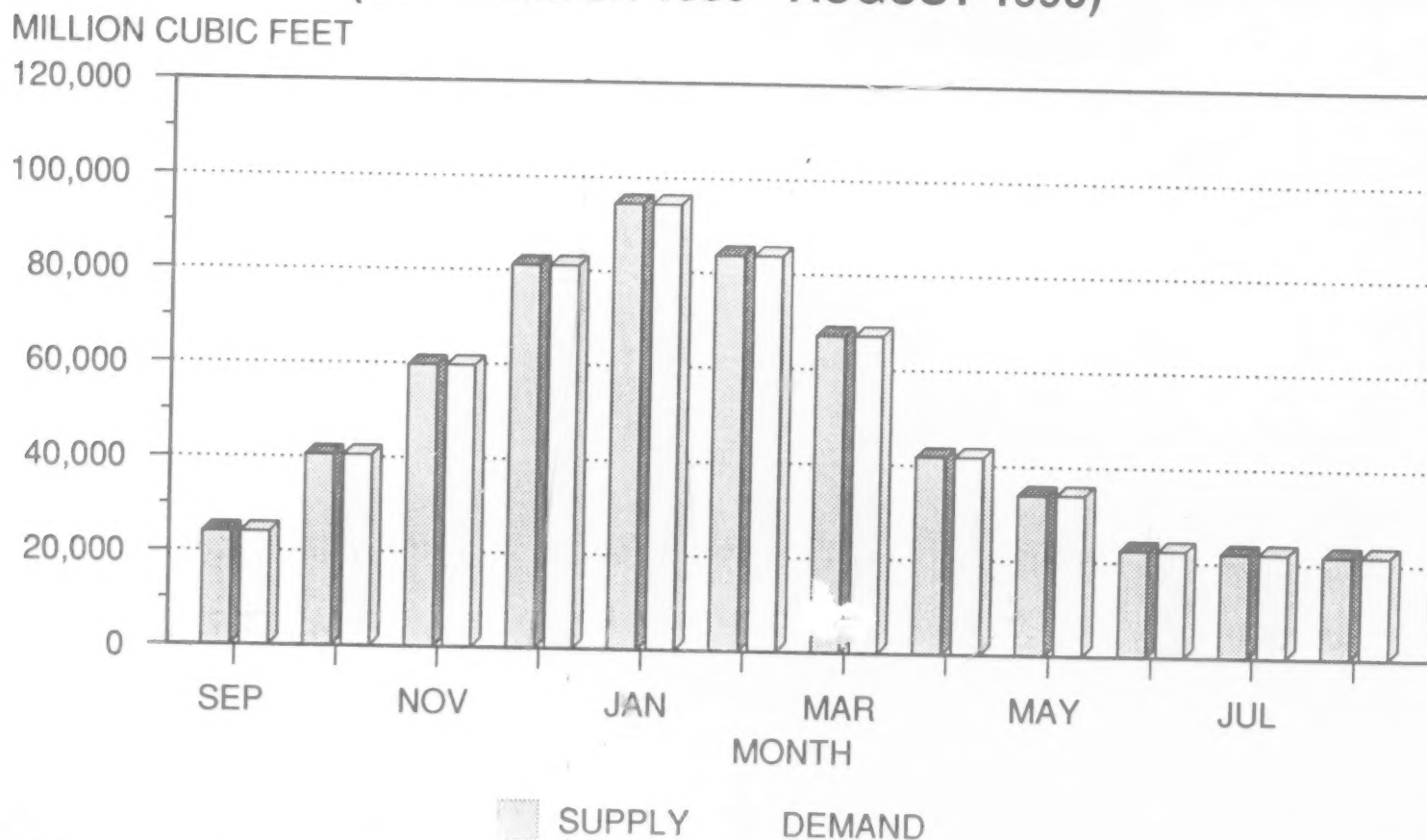
¹ Source: PUCO FORM SG-1 and PUCO, Division of Forecasting.

² A positive deficiency indicates a shortage and a negative deficiency indicates a surplus.

³ Summer months include Apr, May, Jun, Jul, Aug, Sep, Oct.

⁴ Winter months include Nov, Dec, Jan, Feb, Mar.

**FIGURE 8. PROJECTED SUPPLY AND REQUIREMENTS OF
NATURAL GAS BY SECTOR: TOTAL OF EIGHT MAJOR COMPANIES¹
(SEPTEMBER 1989 - AUGUST 1990)**



¹ Source: Table 12.

TABLE 13. COMPARISON BETWEEN ONE YEAR OF ACTUAL AND FORECAST DEMAND
FOR EIGHT MAJOR OHIO NATURAL GAS UTILITIES BY SECTOR
(MMCF)

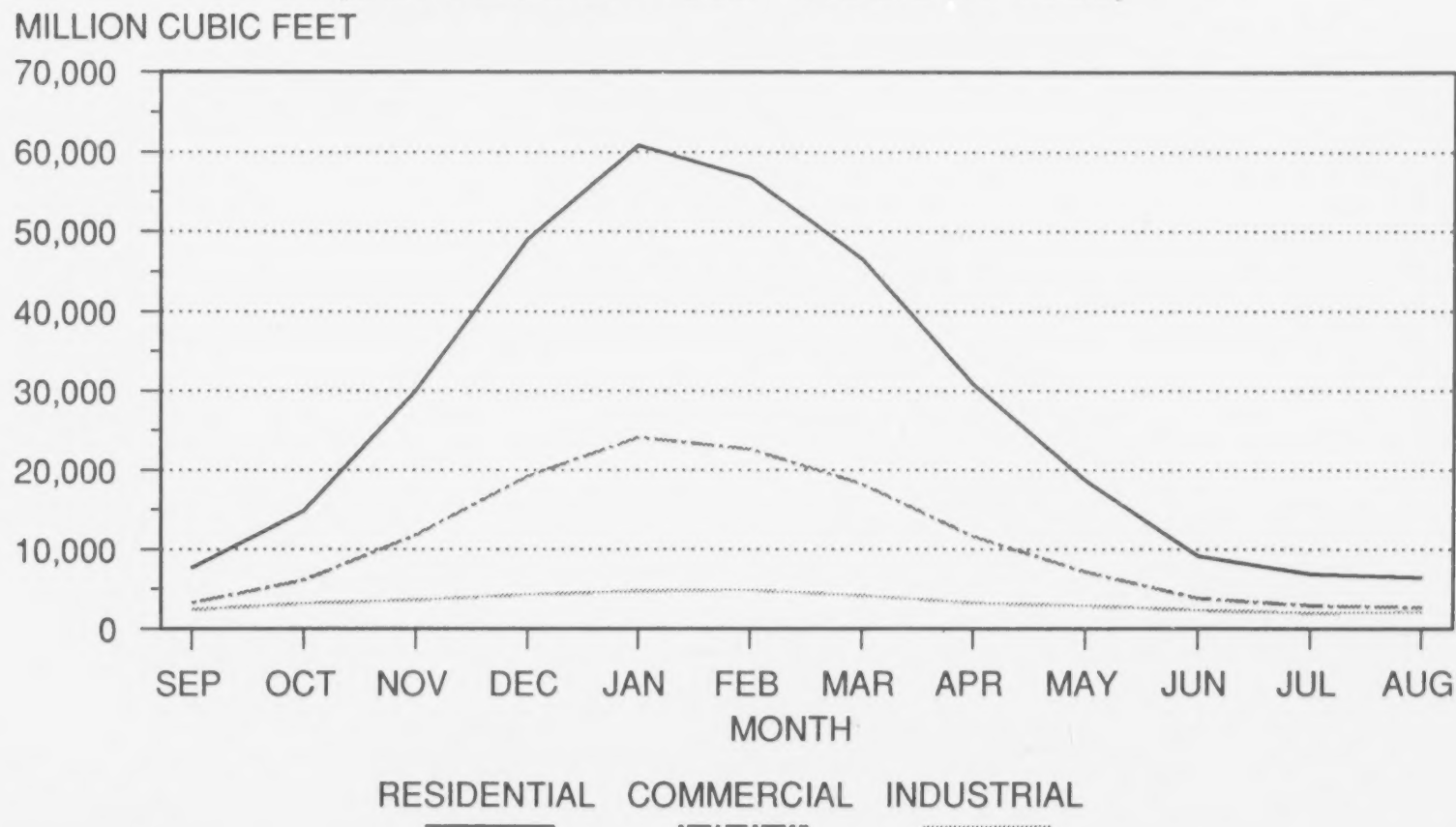
COMPARISON BETWEEN 1 YEAR OF ACTUAL AND FORECAST DEMAND (IN MMCF) FOR 8 MAJOR OHIO GAS UTILITIES BY SECTOR									
MONTH/YEAR	DEGREE DAYS	RESIDENTIAL REQUIREMENT	COMMERCIAL REQUIREMENT	INDUSTRIAL REQUIREMENT	OTHER REQUIREMENT	STORAGE (IN)	TOTAL REQUIREMENT	DEFICIENCY	
9/89	87	7675	3274	2407	2104	8642	24102	0	
9/88	87	7217	3083	2822	13	8817	21952	-17	
	0.0%	6.3%	6.2%	-14.7%	16084.6%	-2.0%	9.8%	100.0%	
10/89	334	14797	6122	3173	7429	8865	40386	0	
10/88	334	16694	6394	3664	17928	8829	53509	-440	
	0.0%	-11.4%	-4.3%	-13.4%	-58.6%	0.4%	-24.5%	100.0%	
11/89	640	29987	11778	3584	9813	4524	59686	0	
11/88	684	31711	12467	5076	9398	2103	56756	13	
	0.6%	-5.4%	-5.5%	-29.4%	81.8%	115.1%	5.2%	-100.0%	
12/89	1052	49009	19173	4305	8641	0	81128	0	
12/88	1028	46325	18205	6005	13114	429	84078	-265	
	2.3%	5.8%	5.3%	-28.3%	-34.1%	-100.0%	-3.5%	100.0%	
1/90	1141	40821	24063	4713	3488	1326	94411	0	
1/89	1124	54876	21655	5694	-3655	64	78634	250	
	1.5%	10.8%	11.1%	-17.2%	195.4%	1971.9%	20.1%	-100.0%	
2/90	980	56777	22591	4905	-1906	1326	83693	0	
2/89	977	52345	20771	5580	10667	26	89389	-105	
	0.3%	8.5%	8.8%	-12.1%	-117.9%	5000.0%	-6.4%	100.0%	
3/90	823	46571	18221	4163	-1747	0	67208	0	
3/89	814	50193	19759	4868	-8932	573	66461	211	
	1.1%	-7.2%	-7.8%	-14.5%	80.4%	-100.0%	1.1%	-100.0%	
4/90	735	30743	11618	3270	-4922	961	41670	0	
4/89	455	34423	12994	3796	-8611	1282	43884	-508	
	61.5%	-10.7%	-10.6%	-13.9%	42.8%	-25.0%	-5.0%	100.0%	
5/90	202	18603	7198	2921	-4635	9828	33915	0	
5/89	196	21433	7817	2813	-5593	9964	36434	-712	
	3.1%	-13.2%	-7.9%	3.8%	17.1%	-1.4%	-6.9%	100.0%	
6/90	30	9112	3791	2357	-2679	9824	22405	0	
6/89	29	10376	4025	2263	-4010	10020	22674	-495	
	3.4%	-12.2%	-5.8%	4.2%	33.2%	-2.0%	-1.2%	100.0%	
7/90	5	6894	2888	2015	483	9750	22030	0	
7/89	5	7354	2894	2329	-3020	10121	19680	-560	
	0.0%	-6.3%	-0.2%	-13.5%	116.0%	-3.7%	11.9%	100.0%	
8/90	11	6468	2689	2137	1248	9050	21592	0	
8/89	11	6780	2766	2059	188	8461	20254	-744	
	0.0%	-4.6%	-2.8%	3.8%	563.8%	7.0%	6.6%	100.0%	
SUMMER TOTAL	1404	94292	37580	18280	-972	56920	206100	0	
	1117	104279	39973	19746	-3105	57494	218387	-3476	
	25.7%	-9.6%	-6.0%	-7.4%	68.7%	-1.0%	-5.6%	100.0%	
WINTER TOTAL	4686	243165	95826	21670	18289	7176	386126	0	
	4629	235450	92857	27223	16592	3195	375318	104	
	1.2%	3.3%	3.2%	-20.4%	10.2%	124.6%	2.9%	-100.0%	
YEAR TOTAL	6090	337457	133406	39950	17317	64096	592226	0	
	5746	339729	132830	46969	13487	60689	593705	-3372	
	6.0%	-0.7%	0.4%	-14.9%	28.4%	5.6%	-0.2%	100.0%	

NOTE: (1) WINTER TOTAL IS A SUM OF THE VALUES IN NOVEMBER, DECEMBER, JANUARY, FEBRUARY, AND MARCH

(2) 999.9% REPRESENTS AN INFINITE PERCENTAGE CHANGE RESULTING FROM AN INCREASE FROM A ZERO VALUE TO SOME NON-ZERO VALUE AND THUS A DIVISION BY ZERO.

(3) A POSITIVE DEFICIENCY INDICATES SHORTAGE, A NEGATIVE DEFICIENCY INDICATES SURPLUS.

**FIGURE 9. PROJECTED REQUIREMENTS OF NATURAL GAS¹
BY SECTOR: EIGHT MAJOR COMPANIES
(SEPTEMBER 1989 - AUGUST 1990)**



¹ Source: Table 13.

TABLE 14. COMPARISON BETWEEN ONE YEAR OF ACTUAL AND FORECAST SUPPLY
FOR EIGHT MAJOR OHIO NATURAL GAS UTILITIES BY SOURCE
(MMCF)

COMPARISON BETWEEN 1 YEAR OF ACTUAL AND FORECAST SUPPLY (IN MMCF) FOR 8 MAJOR OHIO GAS UTILITIES BY SOURCE														
MO/YR	COLUMBIA GAS	CONSOLID- ATED GAS	LAWREN- CEBURG	MICH. WISC.	PANHANDLE EAST	TENN. GAS	TEXAS EASTERN	TEXAS GAS	EMERG GAS	OHIO PRODUCT	SMG	STORAGE/ PROPANE	OTHER	TOTAL SUPPLIES
9/89	560	2229	0	23	30	0	195	0	0	4476	0	165	16424	24102
9/88	185	272	-1	1	56	0	301	0	0	4582	0	190	16383	21969
	202.7%	719.5%	100.0%	2200.0%	-46.4%	0.0%	-35.2%	0.0%	0.0%	-2.3%	0.0%	-13.2%	0.3%	9.7%
10/89	1183	10540	0	35	53	0	153	0	0	4471	0	170	23781	40386
10/88	9926	7303	3	6	188	0	236	0	0	4354	0	284	31649	53949
	-88.1%	44.3%	-100.0%	483.3%	-71.8%	0.0%	-35.2%	0.0%	0.0%	2.7%	0.0%	-40.1%	-24.9%	-25.1%
11/89	2793	9815	0	43	67	0	273	0	0	4444	0	5680	36571	59686
11/88	8337	7727	0	2	26	0	291	878	0	4717	0	5360	29405	56743
	-66.5%	27.0%	0.0%	2050.0%	157.7%	0.0%	-6.2%	-100.0%	0.0%	-5.8%	0.0%	6.0%	24.4%	5.2%
12/89	4398	7073	0	59	97	0	302	0	0	4398	0	14621	50180	81128
12/88	26735	7199	0	30	85	0	240	2482	0	4245	0	16752	26575	84343
	-83.5%	-1.8%	0.0%	96.7%	14.1%	0.0%	25.8%	-100.0%	0.0%	3.6%	0.0%	-12.7%	88.8%	-3.8%
1/90	6043	9944	0	54	1	0	269	0	0	4340	0	17679	56081	94411
1/89	18377	7273	0	1	14	0	285	642	0	4549	0	14621	32622	78384
	-67.1%	36.7%	0.0%	5300.0%	-92.9%	0.0%	-5.6%	-100.0%	0.0%	-4.6%	0.0%	20.9%	71.9%	20.4%
2/90	5452	10696	0	50	1	0	233	0	0	4327	0	12301	50633	83693
2/89	21379	17101	0	11	41	0	351	482	0	4215	0	11096	34818	89494
	-74.5%	-37.5%	0.0%	354.5%	-97.6%	0.0%	-33.6%	-100.0%	0.0%	2.7%	0.0%	10.9%	45.4%	-6.5%
3/90	3885	5532	0	36	1	0	317	0	0	4299	0	8663	44475	67208
3/89	5365	4211	0	11	-63	0	256	0	0	4431	0	7990	44049	66250
	-27.6%	31.4%	0.0%	227.3%	101.6%	0.0%	23.8%	0.0%	0.0%	-3.0%	0.0%	8.4%	1.0%	1.4%
4/90	2879	1958	0	31	1	0	234	0	0	4291	0	4072	28204	41670
4/89	657	2109	0	-8	19	1525	205	0	0	4210	0	5323	30352	44392
	338.2%	-7.2%	0.0%	487.5%	-94.7%	-100.0%	14.1%	0.0%	0.0%	1.9%	0.0%	-23.5%	-7.1%	-6.1%
5/90	1455	7123	0	11	1	0	139	0	0	4294	0	230	20660	33915
5/89	337	3647	0	0	10	1588	135	0	0	4750	0	387	26292	37146
	331.8%	95.3%	0.0%	999.9%	-90.0%	-100.0%	3.0%	0.0%	0.0%	-9.6%	0.0%	-40.6%	-21.4%	-8.7%
6/90	718	1926	0	7	1	0	270	0	0	4219	0	210	15054	22405
6/89	119	0	0	4	3	1542	218	0	0	4479	0	241	16563	23149
	503.4%	999.9%	0.0%	75.0%	-66.7%	-100.0%	23.9%	0.0%	0.0%	-5.8%	0.0%	-12.9%	-9.1%	-3.3%
7/90	695	675	0	6	1	0	273	0	0	4220	0	217	15943	22030
7/89	-7	1	0	0	4	1595	186	0	0	4098	0	260	14103	20240
	10028.6%	67400.0%	0.0%	999.9%	-75.0%	-100.0%	46.8%	0.0%	0.0%	3.0%	0.0%	-16.5%	13.0%	8.8%
8/90	731	401	0	7	1	0	269	0	0	4211	0	217	15755	21592
8/89	59	460	0	3	235	816	234	0	0	4954	0	339	13698	20998
	1139.0%	-39.2%	0.0%	133.3%	-99.6%	-100.0%	15.0%	0.0%	0.0%	-15.0%	0.0%	-36.0%	15.0%	2.8%
SUMMER TOTAL	8221	24852	0	120	88	0	1533	0	0	30184	0	5281	135821	206100
	11276	13992	2	6	515	7066	1515	0	0	31427	0	7024	149040	221863
	-27.1%	77.6%	-100.0%	1900.0%	-82.9%	-100.0%	1.2%	0.0%	0.0%	-4.0%	0.0%	-24.8%	-8.9%	-7.1%
WINTER TOTAL	22571	43060	0	242	167	0	1394	0	0	21808	0	58944	237940	386126
	80193	43511	0	55	103	0	1423	4484	0	22157	0	55819	167469	375214
	-71.9%	-1.0%	0.0%	340.0%	62.1%	0.0%	-2.0%	-100.0%	0.0%	-1.6%	0.0%	5.6%	42.1%	2.9%
YEAR TOTAL	30792	47912	0	362	255	0	2927	0	0	51992	0	64225	373761	592226
	91449	57503	2	61	618	7066	2938	4484	0	51584	0	62843	316509	597077
	-66.3%	18.1%	-100.0%	493.4%	-58.7%	-100.0%	-0.4%	-100.0%	0.0%	-3.0%	0.0%	2.2%	18.1%	-0.8%

NOTE: (1) WINTER TOTAL IS A SUM OF THE VALUES IN NOVEMBER, DECEMBER, JANUARY, FEBRUARY, AND MARCH.

(2) 999.9% REPRESENTS AN INFINITE PERCENTAGE CHANGE RESULTING FROM AN INCREASE FROM A ZERO VALUE TO SOME NON-ZERO VALUE AND THUS A DIVISION BY ZERO.

Table 15. The Growth of Non-tariff Industrial Sales in Ohio¹
(1978 - 1988)
(MMCF)

Year	Industrial Tariff ² Sales	Industrial ² Non-tariff Sales	Total Industrial Sales ²	Share of Non-tariff Sales in Total ² Industrial Requirements
1978	306,603	18,300	324,903	5.63%
1979	304,439	19,600	324,039	6.05%
1980	297,938	21,000	318,938	6.58%
1981	289,009	26,400	315,409	8.37%
1982	227,332	40,300	267,632	15.06%
1983	187,625	70,800	258,425	27.40%
1984	156,255	104,500	260,755	40.08%
1985	119,508	128,284	247,792	51.77%
1986	84,403	151,426	235,829	64.21%
1987	53,350	170,211	223,561	76.14%
1988	61,120	190,400	251,520	75.70%

¹ Source: PUCO Form SG-1 and PUCO, Division of Forecasting.
 Energy Information Administration's Natural Gas Annuals, 1979-1988.
 Energy Information Administration's State Energy Data Report: Consumption Estimates 1960-1987.

² Previous numbers have been revised.

Table 16. Independent Forecasts of Gas Supply and Demand for the Eight Major Ohio Gas Utilities¹
November 1989 - March 1990
(MMCF)

	Normal Weather			10% Colder Than Normal Weather		
	Supply	Demand	Surplus (Deficiency) ²	Supply	Demand	Surplus (Deficiency) ²
Cincinnati Gas & Electric	45,613	47,872	(2,259)	49,265	51,697	(2,432)
Columbia Gas	132,911	129,554	3,357	143,483	139,920	3,563
Dayton Power & Light	34,294	33,850	444	36,852	36,355	497
East Ohio Gas	162,048	153,201	8,847	173,405	163,977	9,428
National Gas	2,280	2,280	0	2,471	2,471	0
Ohio Gas	8,973	8,973	0	9,672	9,672	0
River Gas	1,800	1,800	0	1,940	1,940	0
West Ohio Gas	7,027	7,027	0	7,652	7,652	0
TOTAL	394,946	384,557	10,389	424,740	413,684	11,056

¹ Source: PUCO Form SG-2 of reporting utilities and PUCO, Division of Forecasting.

² Numbers within parentheses indicate deficiency.

Table 17. Independent Forecasts of Gas Supply and Demand for Cincinnati Gas and Electric Company¹
November 1989 - March 1990
(MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD ²	Demand	Surplus (Deficiency) ³	Supply	HDD ²	Demand	Surplus (Deficiency) ³
November 1989	7,238	461	7,160	78	8,111	507	8,024	87
December 1989	9,897	812	10,936	(1,039)	10,747	893	11,875	(1,128)
January 1990	11,229	1,074	10,650	579	11,791	1,181	11,183	608
February 1990	9,522	1,044	11,540	(2,018)	10,161	1,148	12,314	(2,153)
March 1990	7,727	862	7,586	141	8,455	948	8,301	154
TOTAL	45,613		47,872	(2,259)	49,265		51,697	(2,432)

¹ Source: Cincinnati Gas & Electric Company's PUCO Form SG-2 and PUCO, Division of Forecasting.

² Heating Degree Days.

³ Numbers within parentheses indicate deficiency. Projected deficiency levels can be met with gas in storage.

Table 18. Independent Forecasts of Gas Supply and Demand for Columbia Gas of Ohio¹
November 1989 - March 1990
(MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD ²	Demand	Surplus (Deficiency) ³	Supply	HDD ²	Demand	Surplus (Deficiency) ³
November 1989	19,730	447	17,620	2,110	20,832	492	18,604	2,228
December 1989	27,803	832	27,264	539	29,814	915	29,236	578
January 1990	31,668	1,067	29,440	2,228	34,307	1,174	31,893	2,414
February 1990	29,436	1,022	32,900	(3,464)	32,079	1,124	35,854	(3,775)
March 1990	24,274	810	22,330	1,944	26,451	891	24,333	2,118
TOTAL	132,911		129,554	3,357	143,483		139,920	3,563

¹ Source: Columbia Gas of Ohio's PUCO Form SG-2 and PUCO, Division of Forecasting.

² Heating Degree Days.

³ Numbers within parentheses indicate deficiency.

Table 19. Independent Forecasts of Gas Supply and Demand for Dayton Power & Light Company¹
November 1989 - March 1990
(MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD ²	Demand	Surplus (Deficiency) ³	Supply	HDD ²	Demand	Surplus (Deficiency) ³
November 1989	3,684	478	4,600	(916)	3,923	526	4,898	(975)
December 1989	6,584	828	7,820	(1,236)	7,040	911	8,362	(1,322)
January 1990	8,258	1,179	7,830	428	8,922	1,297	8,460	462
February 1990	8,488	1,138	8,150	338	9,139	1,252	8,775	364
March 1990	7,280	953	5,450	1,830	7,828	1,048	5,860	1,968
TOTAL	34,294		33,850	444	36,852		36,355	497

¹ Source: Dayton Power & Light's PUCO Form SG-2 and PUCO, Division of Forecasting.

² Heating Degree Days.

³ Numbers within parentheses indicate deficiency.

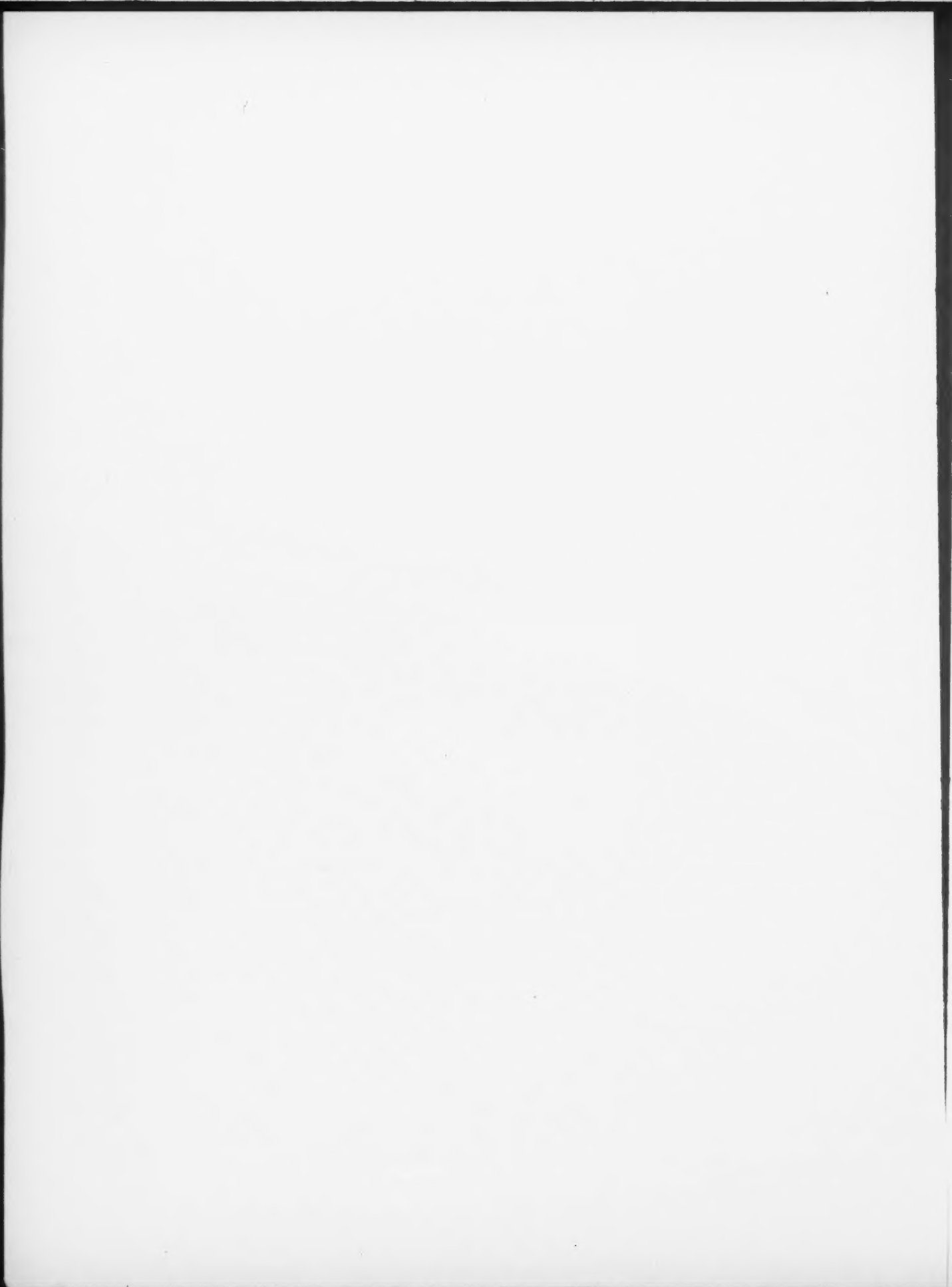
Table 20. Independent Forecasts of Gas Supply and Demand for East Ohio Gas Company¹
November 1989 - March 1990
(MMCF)

	Normal Weather				10% Colder Than Normal Weather			
	Supply	HDD ²	Demand	Surplus (Deficiency) ³	Supply	HDD ²	Demand	Surplus (Deficiency) ³
November 1989	27,187	576	22,590	4,597	28,804	634	23,934	4,870
December 1989	33,778	968	33,925	(147)	36,246	1,065	36,404	(158)
January 1990	39,695	1,246	35,936	3,759	42,566	1,371	38,535	4,031
February 1990	33,567	1,171	35,550	(1,983)	35,968	1,293	38,093	(2,125)
March 1990	27,821	950	25,200	2,621	29,821	1,045	27,012	2,809
TOTAL	162,048		153,201	8,847	173,405		163,977	9,428

¹ Source: Cincinnati Gas & Electric Company's PUCO Form SG-2 and PUCO, Division of Forecasting.

² Heating Degree Days.

³ Numbers within parentheses indicate deficiency.



APPENDIX A

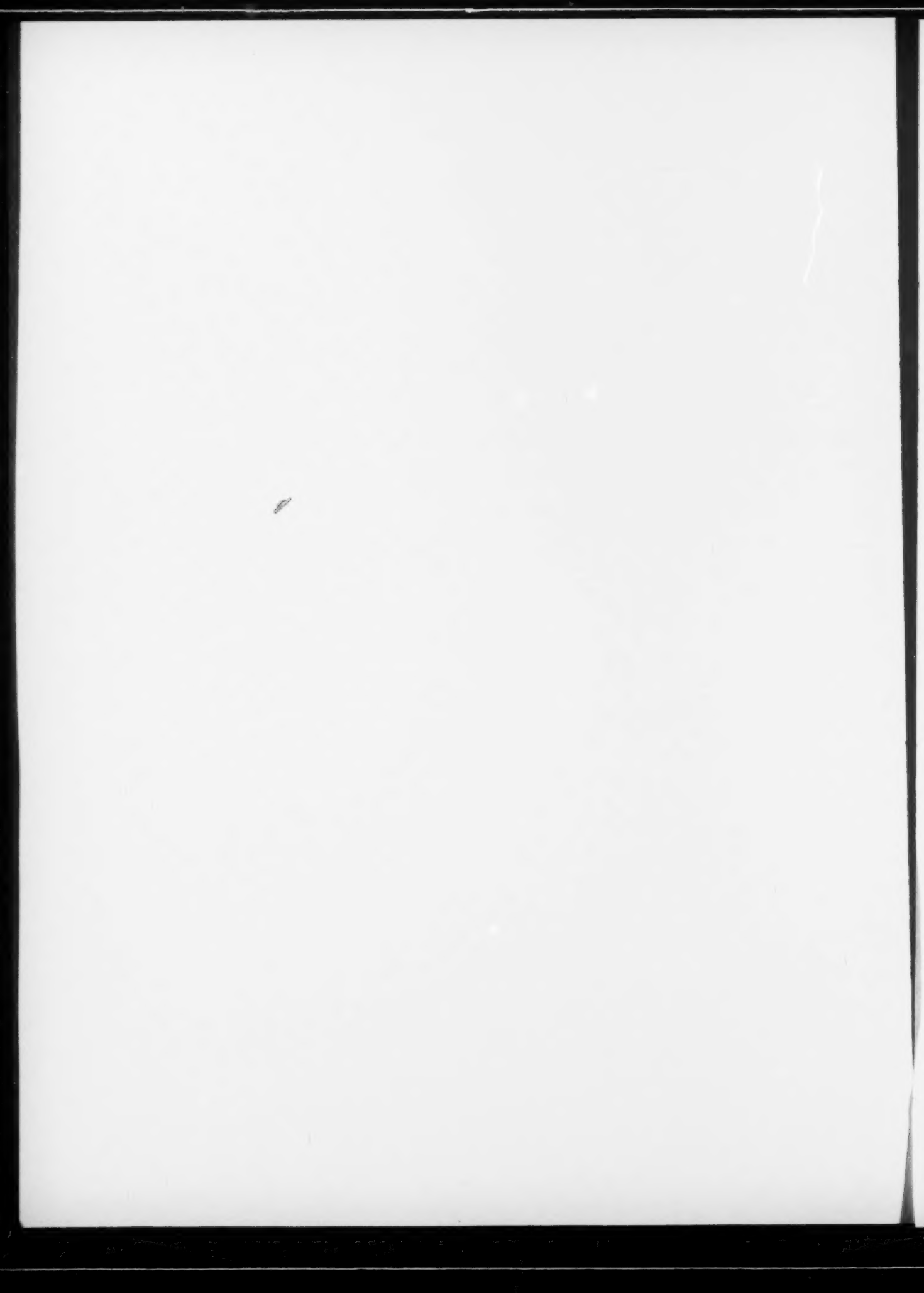


Table A-1: Allegheny Power System¹
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1988-1989)	Utility Forecast (1989-1990)	%Change Utility Forecast vs Actual	PUCO Forecast (1989-1990)	%Change PUCO Forecast vs Actual
November	3,026	3,129	3.40	3,084	1.92
December	3,443	3,449	0.17	3,528	2.47
January	3,428	3,721	8.55	3,574	4.26
February	3,210	3,348	4.30	3,307	3.02
March	3,285	3,419	4.08	3,371	2.62
April	2,954	3,044	3.05	2,981	0.91
May	2,953	3,023	2.37	2,987	1.15
June	2,939	3,045	3.61	2,972	1.12
July	3,079	3,221	4.61	3,103	0.78
August	3,097	3,262	5.33	3,285	6.07
September	* ²	2,999	* ²	2,892	* ²
October	* ²	3,139	* ²	3,057	* ²

¹ Source: Form EIA-119M and PUCO, Division of Forecasting.

² * = Actual figures not available.

Table A-2: American Electric Power¹
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1988-1989)	Utility Forecast (1989-1990)	%Change Utility Forecast vs Actual	PUCO Forecast (1989-1990)	%Change PUCO Forecast vs Actual
November	7,925	8,012	1.10	7,974	0.62
December	8,798	8,883	0.97	8,692	-1.20
January	8,708	9,870	13.34	9,133	4.88
February	8,261	8,662	4.85	8,554	3.55
March	8,353	8,870	6.19	8,588	2.81
April	7,576	7,899	4.26	7,580	0.05
May	7,723	7,753	0.39	8,009	3.70
June	7,762	7,983	2.85	7,895	1.71
July	8,301	8,459	1.90	8,864	6.78
August	8,370	8,673	3.62	8,875	6.03
September	* ²	7,846	* ²	8,116	* ²
October	* ²	7,988	* ²	7,713	* ²

¹ Source: Form EIA-119M and PUCO, Division of Forecasting.

² * = Actual figures not available.

Table A-3: Cincinnati Gas and Electric¹
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1988-1989)	Utility Forecast (1989-1990)	%Change Utility Forecast vs Actual	PUCO Forecast (1989-1990)	%Change PUCO Forecast vs Actual
November	1,474	1,573	6.72	1,486	0.81
December	1,683	1,775	5.47	1,701	1.07
January	1,646	1,904	15.67	1,722	4.62
February	1,610	1,691	5.03	1,665	3.42
March	1,594	1,704	6.90	1,613	1.19
April	1,444	1,492	3.32	1,458	0.97
May	1,493	1,569	5.09	1,500	0.47
June	1,651	1,716	3.94	1,704	3.21
July	1,884	1,945	3.24	2,008	6.58
August	1,821	1,912	5.00	1,960	7.63
September	* ²	1,606	* ²	1,500	* ²
October	* ²	1,555	* ²	1,525	* ²

¹ Source: Form EIA-119M and PUCO, Division of Forecasting.

² * = Actual figures not available.

Table A-4: Cleveland Electric Illuminating Company¹
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1988-1989)	Utility Forecast (1989-1990)	%Change Utility Forecast vs Actual	PUCO Forecast (1989-1990)	%Change PUCO Forecast vs Actual
November	1,685	1,570	-6.82	1,731	2.73
December	1,767	1,677	-5.09	1,838	4.02
January	1,799	1,797	-0.11	1,900	5.61
February	1,699	1,648	-3.00	1,774	4.41
March	1,783	1,722	-3.42	1,823	2.24
April	1,645	1,645	0.00	1,647	0.12
May	1,712	1,614	-5.72	1,727	0.88
June	1,754	1,643	-6.33	1,793	2.22
July	1,893	1,752	-7.45	1,979	4.54
August	1,825	1,743	-4.49	1,941	6.36
September	* ²	1,664	* ²	1,753	* ²
October	* ²	1,674	* ²	1,769	* ²

¹ Source: Form EIA-119M and PUCO, Division of Forecasting.

² * = Actual figures not available.

Table A-5: Dayton Power and Light¹
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1988-1989)	Utility Forecast (1989-1990)	%Change Utility Forecast vs Actual	PUCO Forecast (1989-1990)	%Change PUCO Forecast vs Actual
November	1,052	1,066	1.33	1,048	-0.38
December	1,183	1,113	-5.92	1,190	0.59
January	1,161	1,338	15.25	1,226	5.60
February	1,132	1,143	0.97	1,166	3.00
March	1,123	1,184	5.43	1,130	0.62
April	995	1,018	2.31	997	0.20
May	1,012	1,001	-1.09	1,048	3.56
June	1,076	945	-12.17	1,134	5.39
July	1,203	1,175	-2.33	1,256	4.41
August	1,174	1,145	-2.47	1,220	3.92
September	* ²	1,018	* ²	979	* ²
October	* ²	1,060	* ²	1,069	* ²

¹ Source: Form EIA-119M and PUCO, Division of Forecasting.

² * = Actual figures not available.

Table A-6: Ohio Edison Company¹
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1988-1989)	Utility Forecast (1989-1990)	%Change Utility Forecast vs Actual	PUCO Forecast (1988-1990)	%Change PUCO Forecast vs Actual
November	2,326	2,522	8.43	2,340	0.60
December	2,523	2,677	6.10	2,578	2.18
January	2,596	2,825	8.82	2,625	1.12
February	2,468	2,494	1.05	2,464	-0.16
March	2,554	2,598	1.72	2,594	1.57
April	2,349	2,398	2.09	2,367	0.77
May	2,394	2,429	1.46	2,417	0.96
June	2,545	2,519	-1.02	2,439	-4.17
July	2,696	2,681	-0.56	2,704	0.30
August	2,685	2,655	-1.12	2,770	3.17
September	* ²	2,449	* ²	2,226	* ²
October	* ²	2,551	* ²	2,366	* ²

¹ Source: Form EIA-119M and PUCO, Division of Forecasting.

² * = Actual figures not available.

Table A-7: Ohio Valley Electric Corporation¹
Forecast of Net Energy for Load
(1000 MWH)

Month	System Net Generation (1988-1989)	Utility Forecast ² (1989-1990)	%Change Utility Forecast vs Actual
November	1,475	1,523	3.25
December	1,565	1,588	1.47
January	1,503	1,521	1.20
February	1,364	1,362	-0.15
March	1,490	1,439	-3.42
April	1,402	1,394	-0.57
May	1,502	1,462	-2.66
June	1,431	1,472	2.87
July	* ³	1,608	* ³
August	* ³	1,601	* ³
September	* ³	1,495	* ³
October	* ³	1,538	* ³

¹ Source: Form SE-1 and PUCO, Division of Forecasting.

² Reflects Total Expected Net Generation.

³ * = Actual figures not available.

Table A-8: Toledo Edison Company¹
Forecast of Net Energy for Load
(1000 MWH)

Month	Net Energy For Load (1988-1989)	Utility Forecast (1989-1990)	%Change Utility Forecast vs Actual	PUCO Forecast (1989-1990)	%Change PUCO Forecast vs Actual
November	737	709	-3.80	720	-2.31
December	787	787	0.00	801	1.78
January	877	781	-10.95	858	-2.17
February	785	712	-9.30	823	4.84
March	782	736	-5.88	797	1.92
April	663	666	0.45	681	2.71
May	650	678	4.31	705	8.46
June	671	712	6.11	737	9.84
July	692	764	10.40	795	14.88
August	* ²	773	* ²	778	* ²
September	* ²	687	* ²	705	* ²
October	* ²	696	* ²	737	* ²

¹ Source: Form SE-1 and PUCO, Division of Forecasting.

² * = Actual figures not available.

Table A-9: Independent Forecast of Ohio Electricity Demand¹
Residential Sector
(1000 MWH)

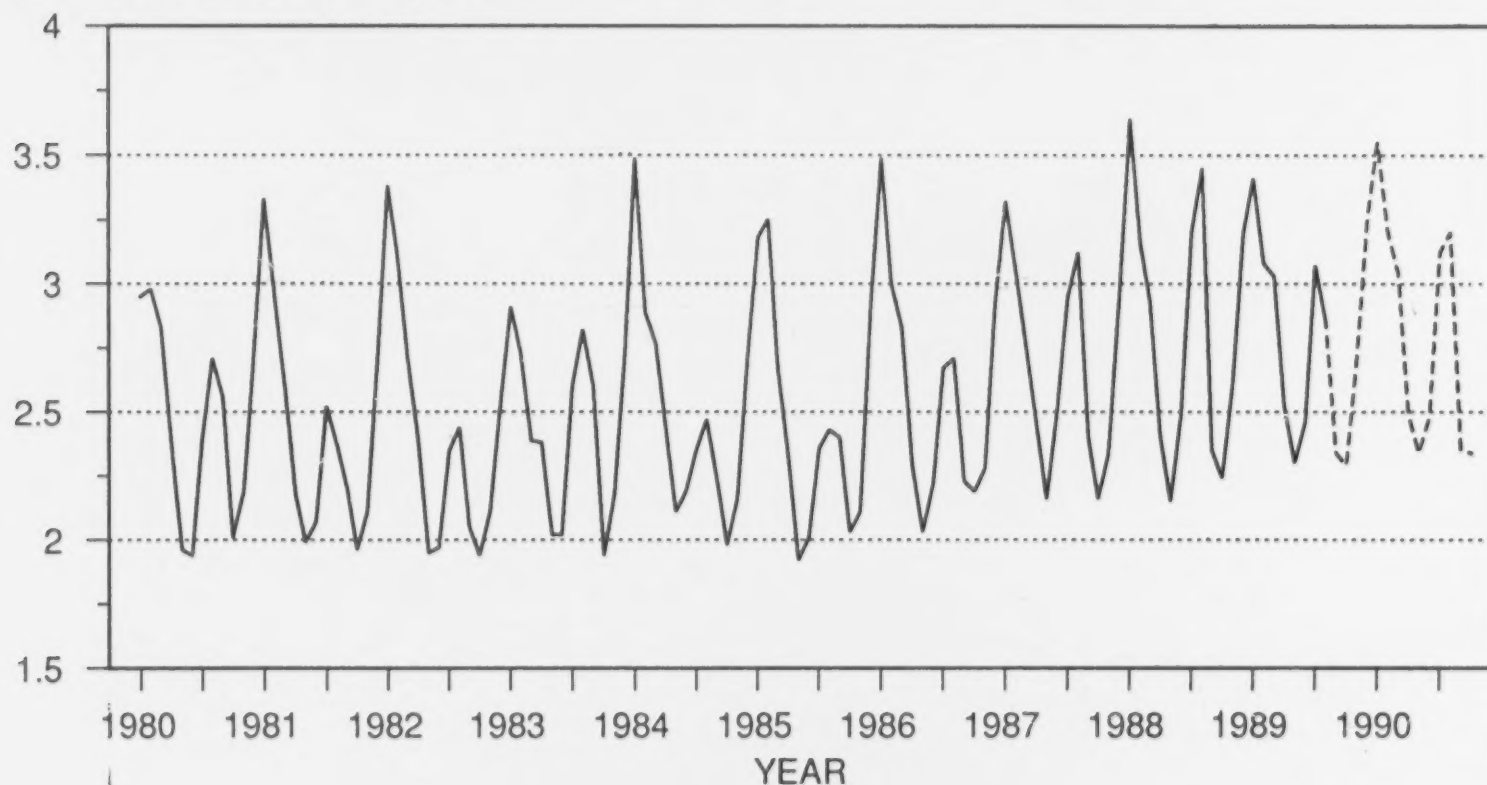
Month	Lower 95% Confidence Limit	PUCO Forecast (1988-89)	Upper 95% Confidence Limit	Actual (1987-88)	Forecast Percentage Change
November	2,470	2,687	2,900	2,622	2.5
December	3,040	3,264	3,490	3,196	2.1
January	3,270	3,553	3,840	3,408	4.3
February	3,040	3,195	3,350	3,076	3.9
March	2,850	3,035	3,220	3,031	0.1
April	2,360	2,493	2,630	2,519	-1.0
May	2,180	2,341	2,500	2,300	1.8
June	2,280	2,476	2,670	2,456	0.8
July	2,840	3,120	3,400	3,067	1.7
August	2,940	3,195	3,450	2,846	12.3
September	2,200	2,350	2,500	* ²	* ²
October	2,180	2,335	2,490	* ²	* ²

¹ Source: Ohio Electric Utility Institute and PUCO, Division of Forecasting (Figures do not include Buckeye Power, Inc. service area and OVEC).

² * = Actual figures not available.

FIGURE A-1. OHIO RESIDENTIAL ELECTRICITY REQUIREMENTS^{1,2} ACTUAL AND PROJECTED (JANUARY 1980-OCTOBER 1990)

MILLION MEGAWATT-HOURS



ACTUAL PROJECTED

1 Source: Ohio Electric Utility Institute and PUCO, Division of Forecasting.

2 Does not include Buckeye Power, Inc. and OVEC.

Table A-10: Independent Forecast of Ohio Electricity Demand¹
Commercial Sector
(1000 MWH)

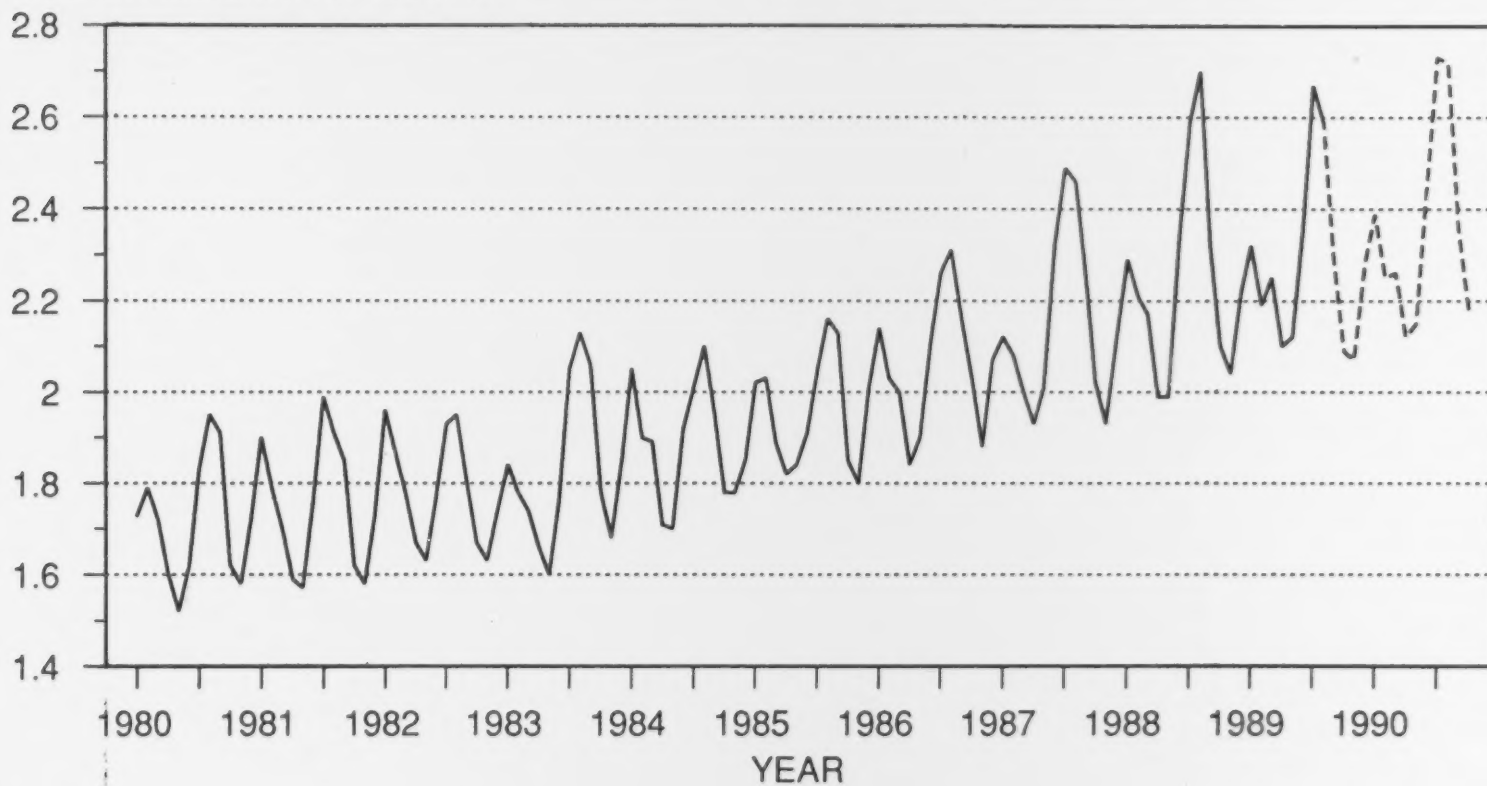
Month	Lower 95% Confidence Limit	PUCO Forecast (1989-90)	Upper 95% Confidence Limit	Actual (1988-89)	Forecast Percentage Change
November	1,950	2,068	2,180	2,038	1.5
December	2,160	2,284	2,410	2,220	2.9
January	2,230	2,392	2,550	2,322	3.0
February	2,150	2,254	2,360	2,189	3.0
March	2,150	2,263	2,380	2,249	0.6
April	2,010	2,123	2,240	2,097	1.2
May	2,010	2,154	2,290	2,122	1.5
June	2,310	2,446	2,580	2,360	3.6
July	2,580	2,727	2,880	2,668	2.2
August	2,540	2,715	2,890	2,585	5.0
September	2,210	2,360	2,510	* ²	* ²
October	2,080	2,177	2,270	* ²	* ²

¹ Source: Ohio Electric Utility Institute and PUCO, Division of Forecasting (Figures do not include Buckeye Power, Inc. service area and OVEC).

² * = Actual figures not available.

FIGURE A-2. OHIO COMMERCIAL ELECTRICITY REQUIREMENTS^{1,2} **ACTUAL AND PROJECTED (JANUARY 1980-OCTOBER 1990)**

MILLION MEGAWATT-HOURS



ACTUAL PROJECTED

1 Source: Ohio Electric Utility Institute and PUCO, Division of Forecasting.

2 Does not include Buckeye Power, Inc. and OVEC.

Table A-11: Independent Forecast of Ohio Electricity Demand¹
Industrial Sector
(1000 MWH)

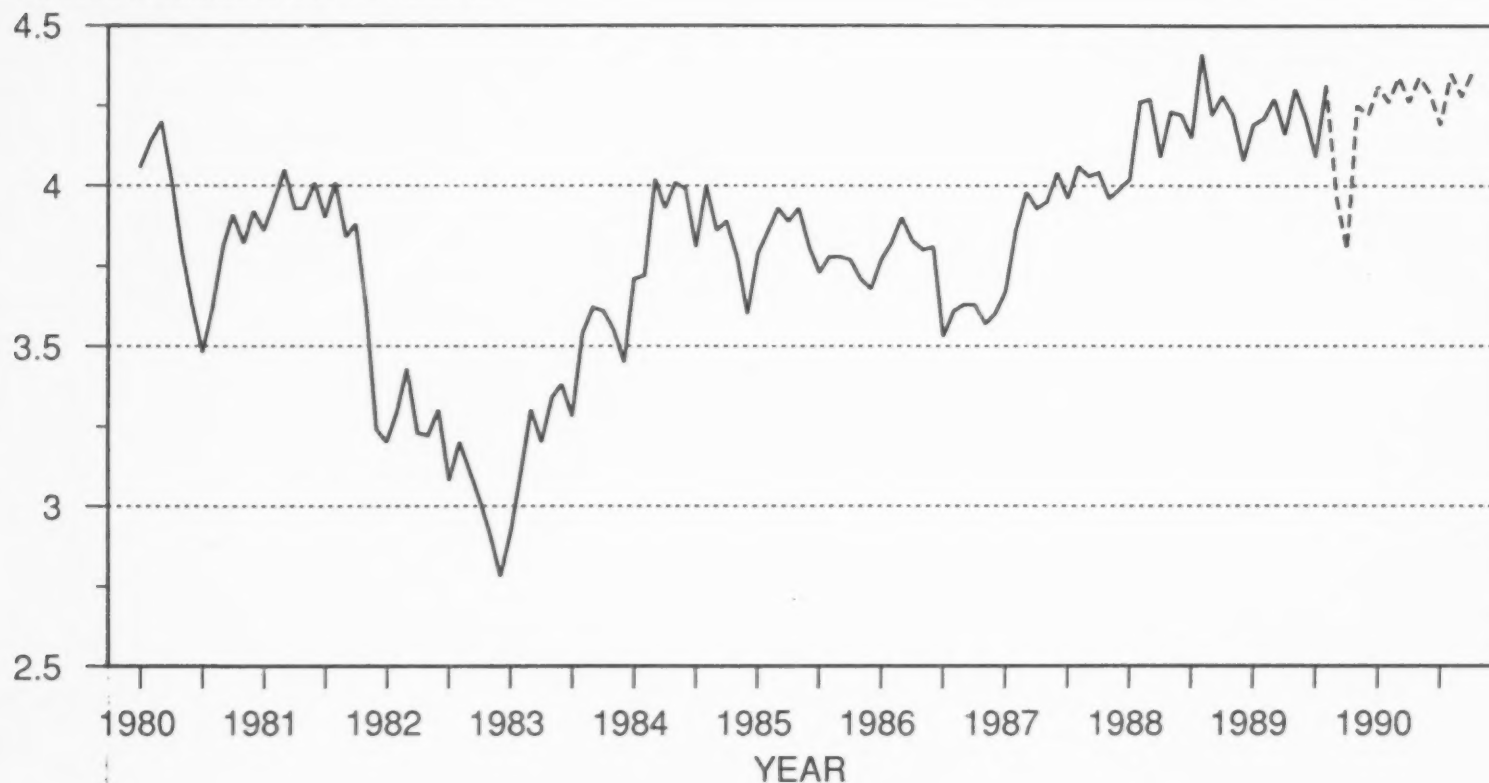
Month	Lower 95% Confidence Limit	PUCO Forecast (1989-90)	Upper 95% Confidence Limit	Actual (1988-89)	Forecast Percentage Change
November	3,930	4,254	4,570	4,221	0.8
December	3,900	4,219	4,540	4,080	3.4
January	3,990	4,310	4,630	4,187	2.9
February	4,000	4,262	4,530	4,207	1.3
March	4,040	4,337	4,630	4,269	1.6
April	4,000	4,261	4,530	4,164	2.3
May	4,050	4,341	4,640	4,300	1.0
June	4,010	4,293	4,570	4,214	1.9
July	3,890	4,186	4,480	4,086	2.4
August	4,050	4,352	4,660	4,310	1.0
September	3,980	4,280	4,580	* ²	* ²
October	4,050	4,354	4,660	* ²	* ²

¹ Source: Ohio Electric Utility Institute and PUCO, Division of Forecasting (Figures do not include Buckeye Power, Inc. service area and OVEC).

² * = Actual figures not available.

FIGURE A-3. OHIO INDUSTRIAL ELECTRICITY REQUIREMENTS ACTUAL AND PROJECTED (JANUARY 1980-OCTOBER 1990)^{1,2}

MILLION MEGAWATT-HOURS



ACTUAL PROJECTED

1 Source: Ohio Electric Utility Institute and PUCO, Division of Forecasting.

2 Does not include Buckeye Power, Inc. and OVEC.

Table A-12: Independent Forecast of Ohio Electricity Demand¹
All Sectors
(1000 MWH)

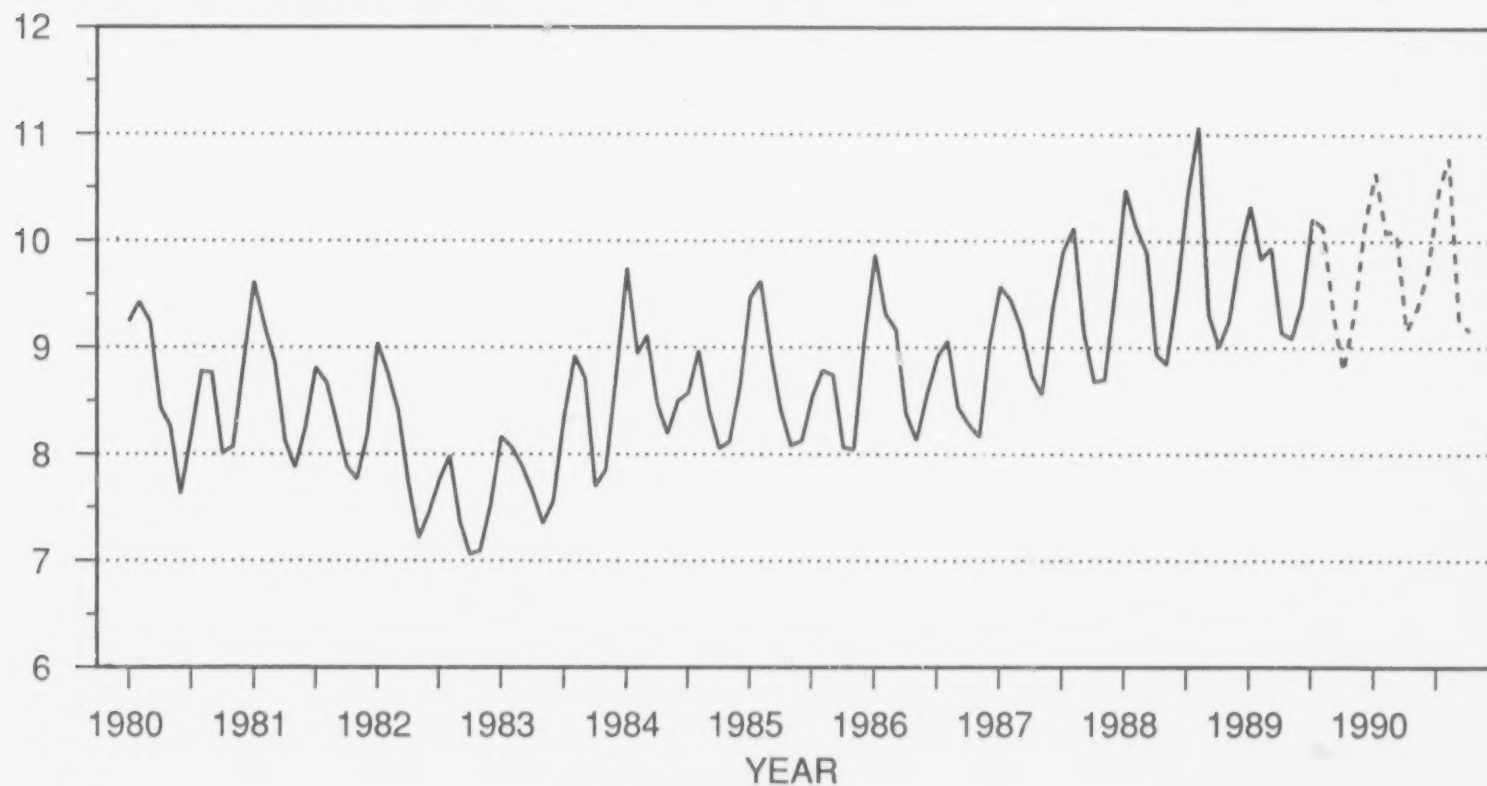
Month	Lower 95% Confidence Limit	PUCO Forecast (1989-90)	Upper 95% Confidence Limit	Actual (1988-89)	Forecast Percentage Change
November	8,650	9,299	9,950	9,262	0.4
December	9,450	10,158	10,870	9,909	2.5
January	10,110	10,641	11,170	10,331	3.0
February	9,370	10,079	10,780	9,827	2.6
March	9,480	10,086	10,690	9,938	1.5
April	8,610	9,163	9,710	9,137	0.3
May	8,800	9,357	9,920	9,090	2.9
June	9,120	9,706	10,290	9,413	3.1
July	9,850	10,484	11,110	10,209	2.7
August	10,080	10,777	11,480	10,129	6.4
September	8,650	9,251	9,850	* ²	* ²
October	8,570	9,162	9,7600	* ²	* ²

¹ Source: Ohio Electric Utility Institute and PUCO, Division of Forecasting (Figures do not include Buckeye Power, Inc. service area and OVEC).

² * = Actual figures not available.

FIGURE A-4. OHIO TOTAL ELECTRICITY REQUIREMENTS^{1,2} ACTUAL AND PROJECTED (JANUARY 1980-OCTOBER 1990)

MILLION MEGAWATT-HOURS

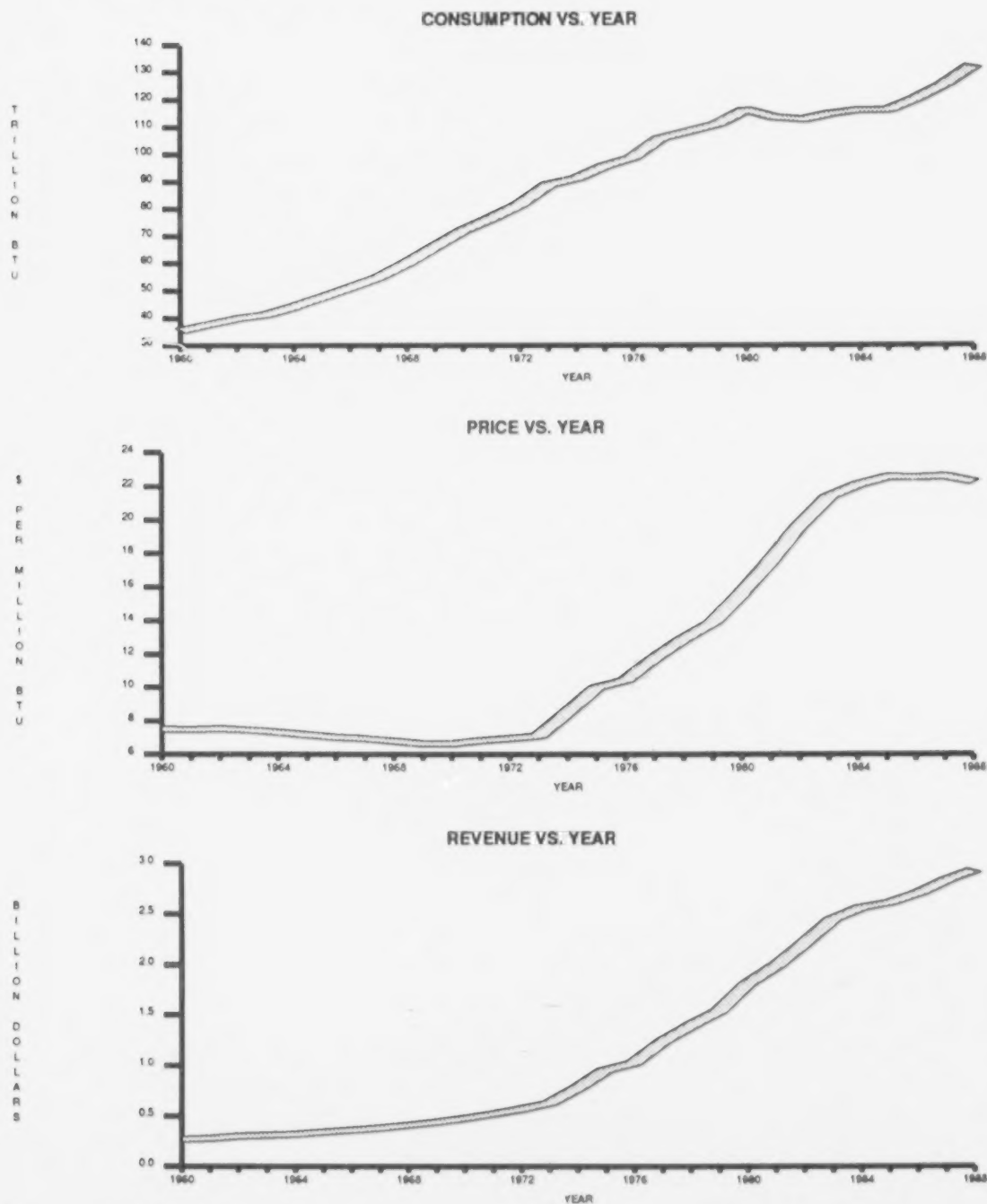


ACTUAL PROJECTED

1 Source: Ohio Electric Utility Institute and PUCO, Division of Forecasting.

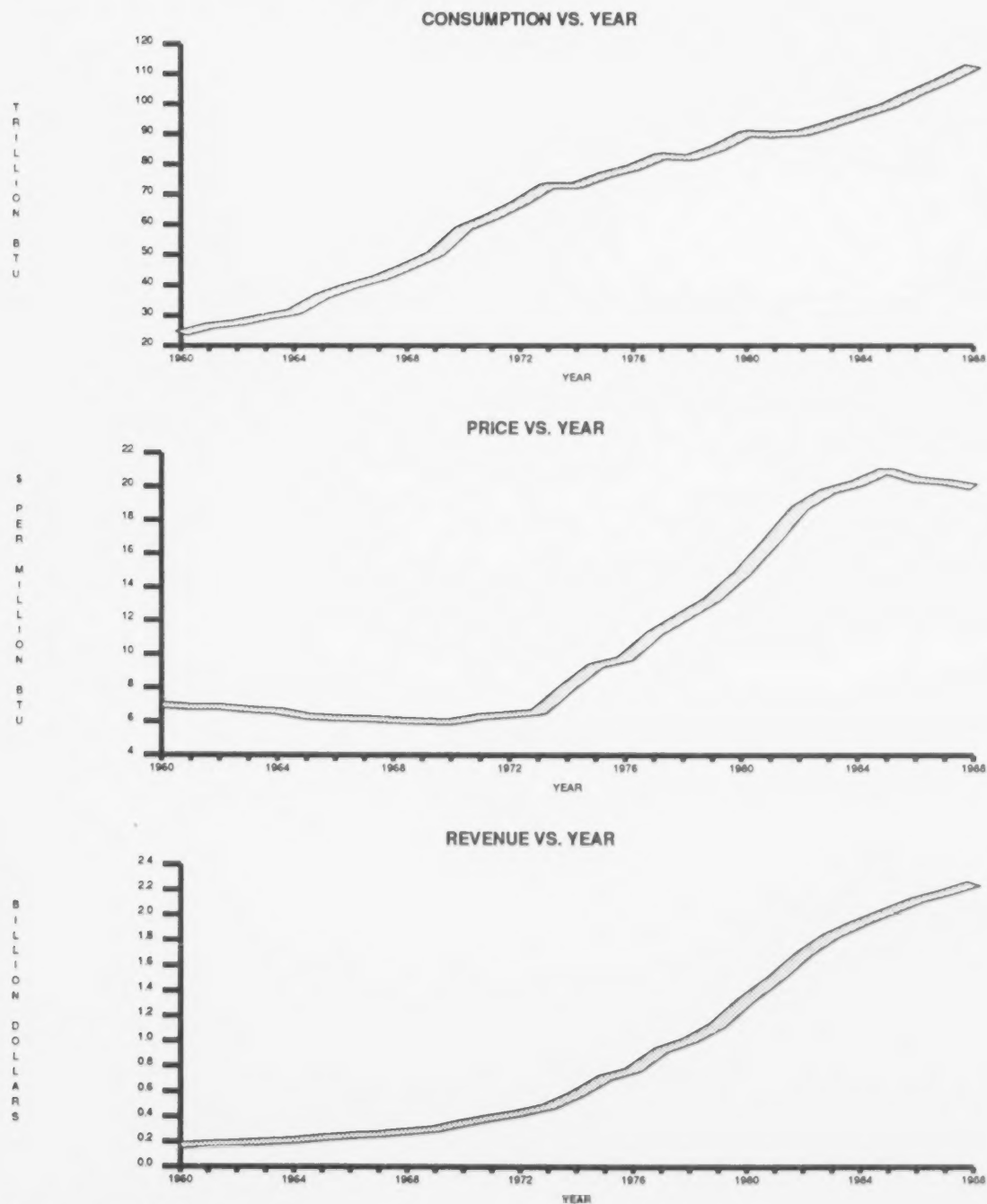
2 Does not include Buckeye Power, Inc. and OVEC.

**FIGURE A-5. ANNUAL OHIO ELECTRIC CONSUMPTION,
PRICE AND REVENUE: RESIDENTIAL SECTOR
(1960-1988)**



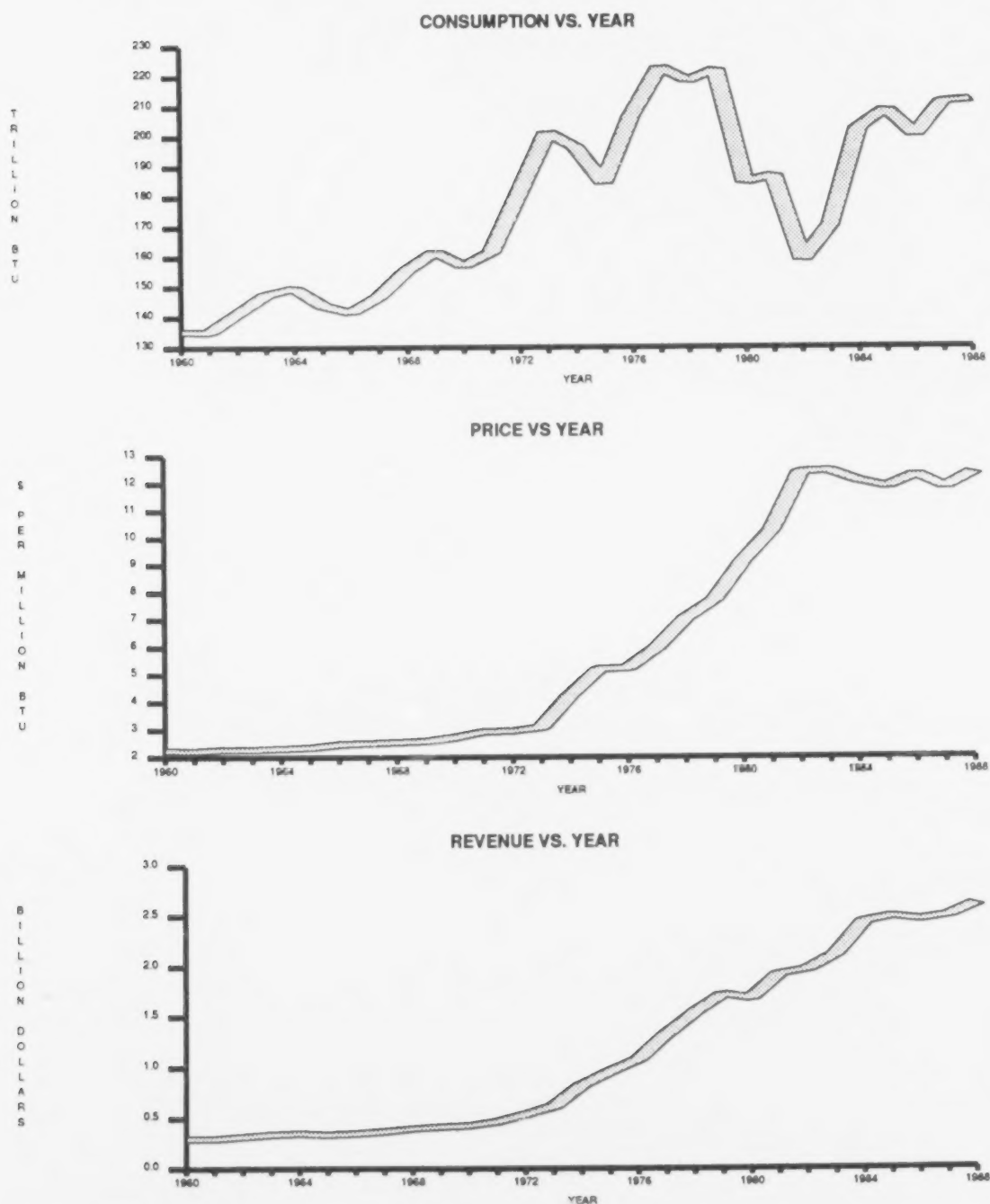
Source: EEI Yearbook.

**FIGURE A-6. ANNUAL OHIO ELECTRIC CONSUMPTION,
PRICE AND REVENUE: COMMERCIAL SECTOR
(1960-1988)**



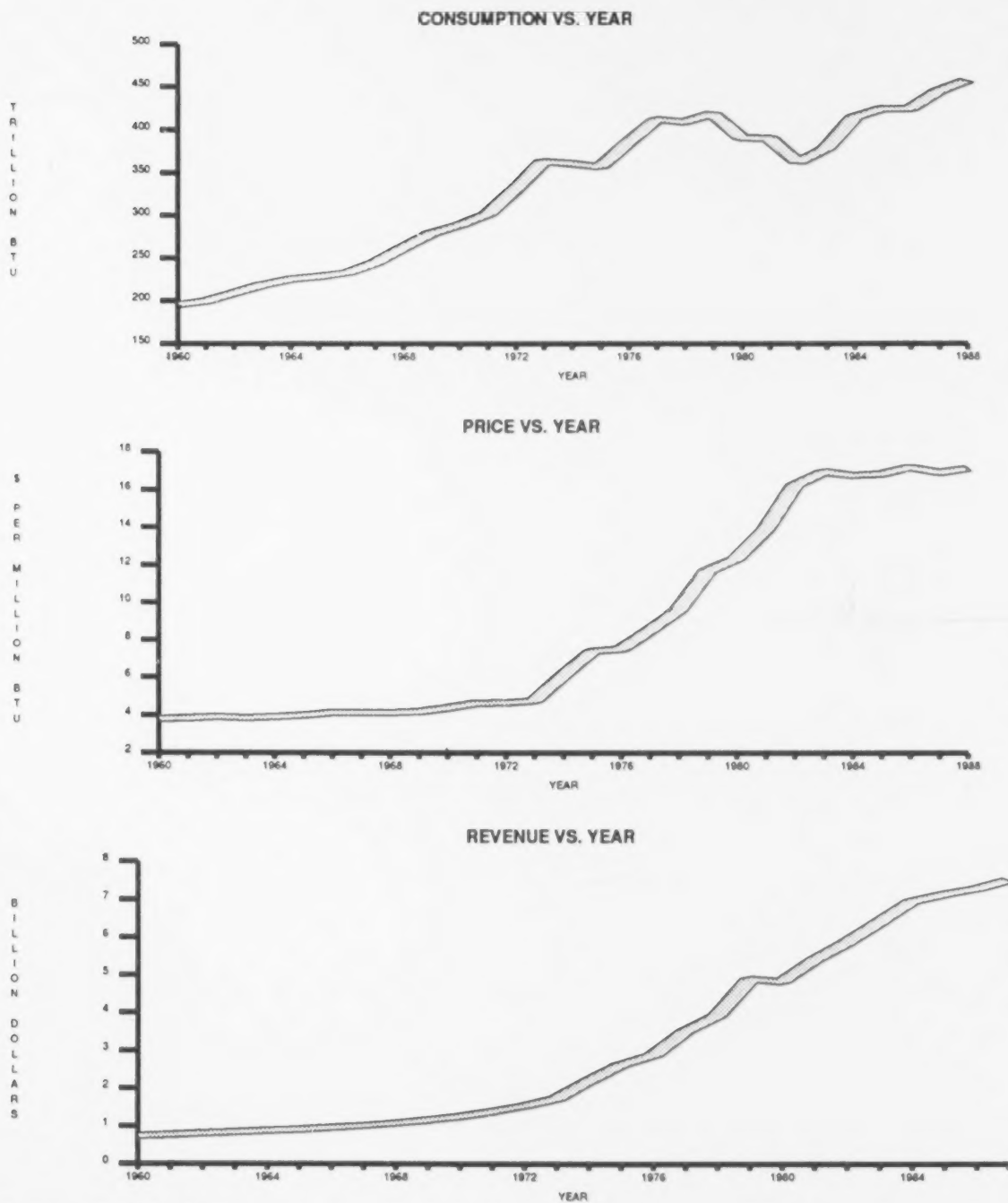
Source: EEI Yearbook.

**FIGURE A-7. ANNUAL OHIO ELECTRIC CONSUMPTION,
PRICE AND REVENUE: INDUSTRIAL SECTOR
(1960-1988)**



Source: EEI Yearbook.

**FIGURE A-8. ANNUAL OHIO ELECTRIC CONSUMPTION,
PRICE AND REVENUE: TOTAL OF ALL SECTORS
(1960-1988)**



Source: EEI Yearbook.

APPENDIX B

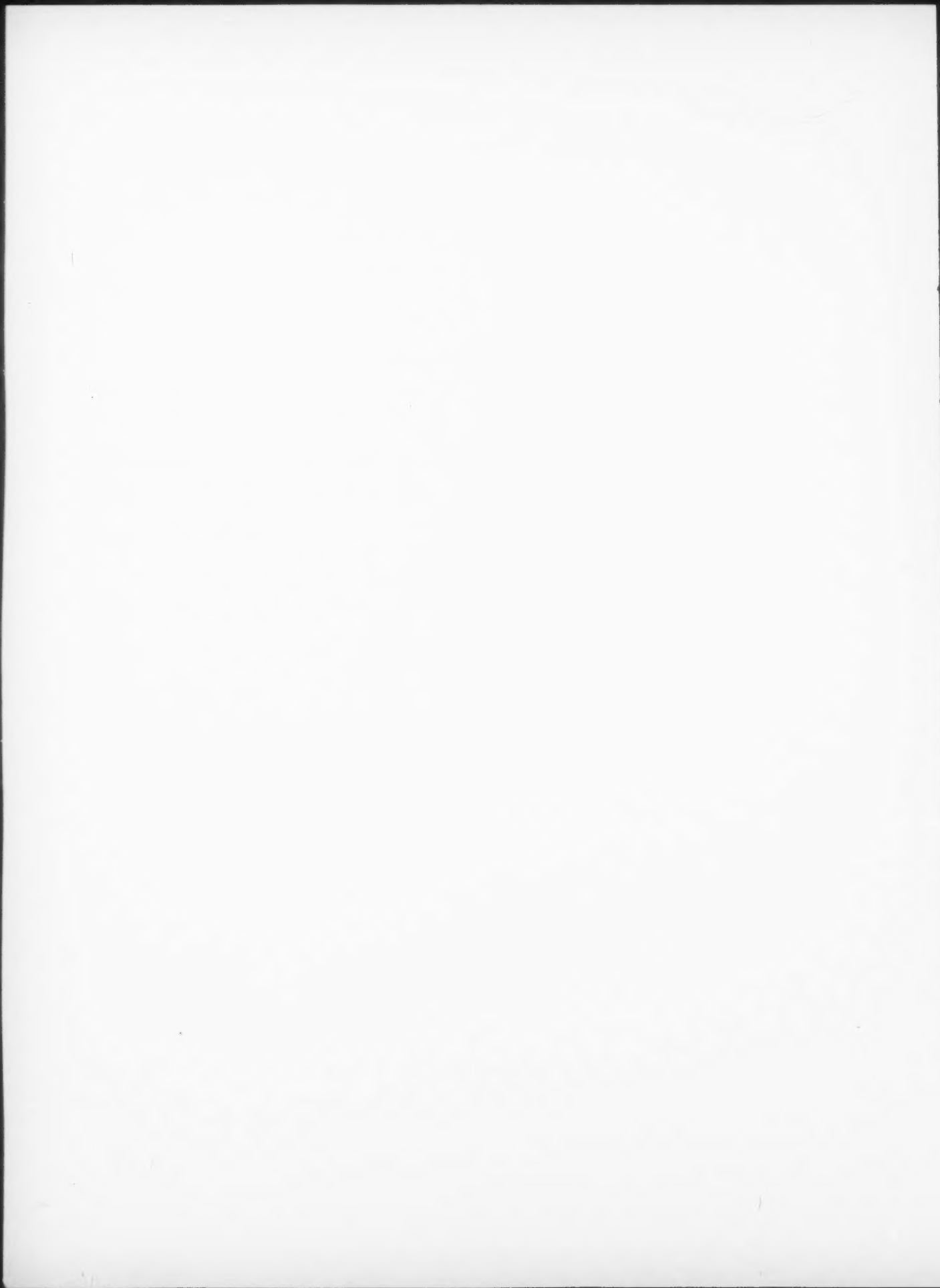


**Table B-1. Cincinnati Gas and Electric
Forecast of Natural Gas Requirements¹
(MMCF)**

Month	Actual Demand (1988-1989)	Utility Forecast (1989-1990)	%Change Utility Forecast vs Actual	PUCO Forecast (1989-1990)	%Change PUCO Forecast vs Actual
November	7,330	7,238	-1.26	7,160	-2.32
December	10,815	9,897	-8.49	10,936	1.12
January	9,894	11,229	13.49	10,650	7.64
February	10,892	9,522	-12.58	11,540	5.95
March	7,432	7,727	3.97	7,586	2.07
April	5,181	4,671	-9.84	4,960	-4.27
May	3,880	2,574	-33.66	3,790	-2.32
June	2,339	1,590	-32.02	2,180	-6.80
July	2,230	1,688	-24.30	1,950	-12.56
August	2,389	1,654	-30.77	2,103	-11.97
September	* ²	1,724	* ²	2,450	* ²
October	* ²	3,801	* ²	6,340	* ²

¹ Source: PUCO Form SG-2 and PUCO, Division of Forecasting.

² * = Actual figures not available.

**Table B-2. Columbia Gas of Ohio
Forecast of Natural Gas Requirements¹
(MMCF)**

Month	Actual Demand (1988-1989)	Utility Forecast (1989-1990)	%Change Utility Forecast vs Actual	PUCO Forecast (1989-1990)	%Change PUCO Forecast vs Actual
November	18,416	19,730	7.14	17,620	-4.32
December	29,134	27,803	-4.57	27,264	-6.42
January	27,231	31,668	16.29	29,440	8.11
February	31,871	29,436	-7.64	32,900	3.23
March	23,237	24,274	4.46	22,330	-3.90
April	14,612	14,442	-1.16	14,810	1.36
May	8,807	5,947	-32.47	8,450	-4.05
June	4,112	3,909	-4.94	4,320	5.06
July	4,358	4,328	-0.69	4,020	-7.76
August	3,797	4,486	18.15	3,852	1.45
September	* ²	4,640	* ²	3,150	* ²
October	* ²	9,652	* ²	17,100	* ²

¹ Source: PUCO Form SG-2 and PUCO, Division of Forecasting.

² * = Actual figures not available.

**Table B-3. Dayton Power and Light
Forecast of Natural Gas Requirements¹
(MMCF)**

Month	Actual Demand (1988-1989)	Utility Forecast (1989-1990)	%Change Utility Forecast vs Actual	PUCO Forecast (1989-1990)	%Change PUCO Forecast vs Actual
November	5,037	3,684	-26.86	4,600	-8.68
December	7,737	6,584	-14.90	7,820	1.07
January	6,959	8,258	18.67	7,830	12.52
February	7,910	8,488	7.31	8,150	3.03
March	5,956	7,280	22.23	5,450	-8.50
April	3,433	4,926	43.49	3,500	1.95
May	2,525	2,091	-17.19	2,270	-10.10
June	1,290	1,320	2.33	1,210	-6.20
July	1,184	974	-17.74	1,180	-0.34
August	1,295	1,177	-9.11	1,350	4.25
September	* ²	1,422	* ²	1,220	* ²
October	* ²	2,146	* ²	4,200	* ²

¹ Source: PUCO Form SG-2 and PUCO, Division of Forecasting.

² * = Actual figures not available.

**Table B-4. East Ohio Gas
Forecast of Natural Gas Requirements¹
(MMCF)**

Month	Actual Demand (1988-1989)	Utility Forecast (1989-1990)	%Change Utility Forecast vs Actual	PUCO Forecast (1989-1990)	%Change PUCO Forecast vs Actual
November	23,593	27,187	15.23	22,590	-4.25
December	33,223	33,778	1.67	33,925	2.11
January	30,873	39,695	28.58	35,936	16.40
February	35,200	33,567	-4.64	35,550	0.99
March	26,498	27,821	4.99	25,200	-4.90
April	18,691	16,807	-10.08	19,400	3.79
May	20,121	19,650	-2.34	18,620	-7.46
June	14,243	14,656	2.90	13,990	-1.78
July	11,242	13,487	19.97	11,750	4.52
August	11,965	12,705	6.18	11,390	-4.81
September	* ²	15,250	* ²	14,155	* ²
October	* ²	22,723	* ²	24,600	* ²

¹ Source: PUCO Form SG-2 and PUCO, Division of Forecasting.

² * = Actual figures not available.

**Table B-5. Independent Forecast of Ohio Natural Gas
End User Requirements: Residential Sector¹
(MMCF)**

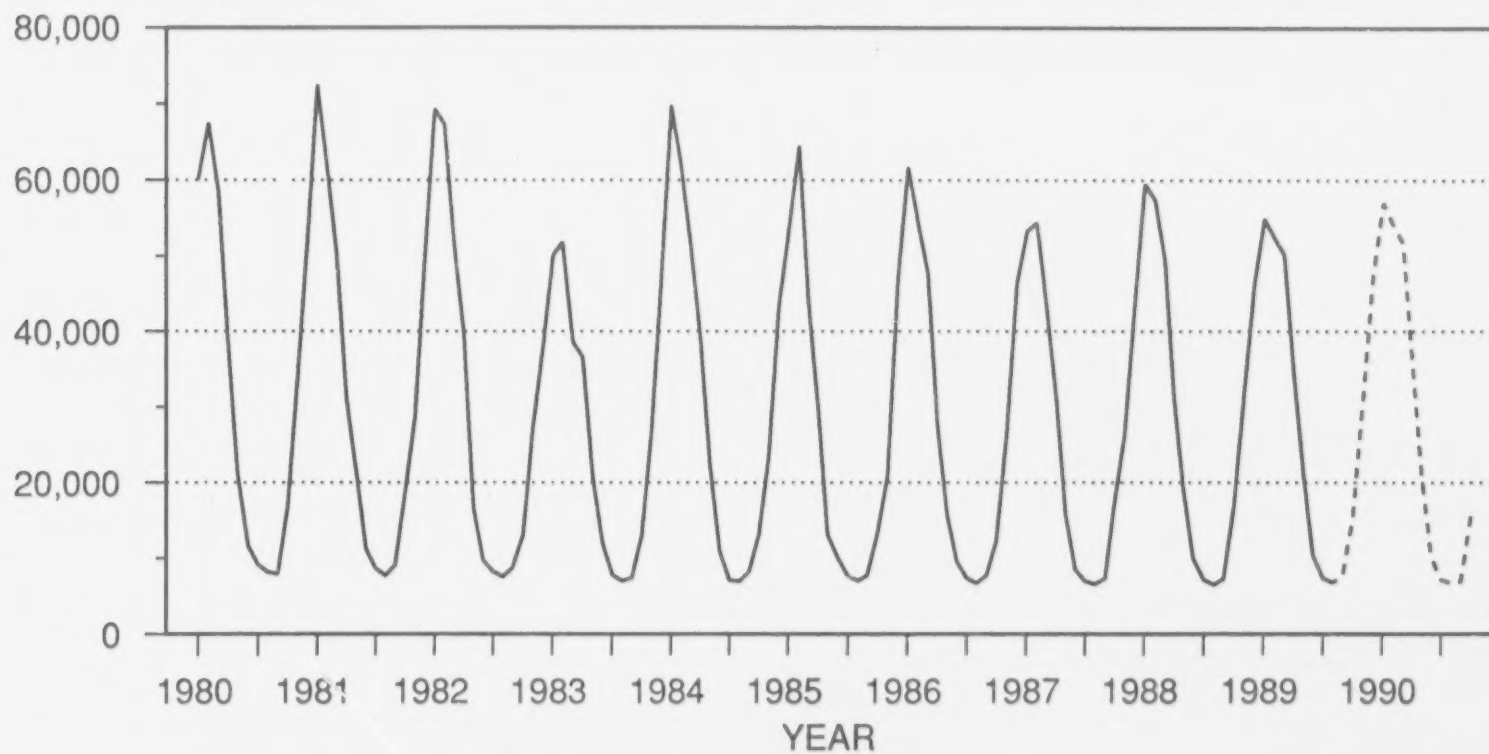
Month	Lower 95% Confidence Limit	PUCO Forecast (1989-90)	Upper 95% Confidence Limit	Actual (1988-89)	Forecast Percentage Change
November	28,486	30,963	33,440	31,711	-2.4
December	43,510	47,293	51,076	46,325	2.1
January	52,390	56,946	61,502	54,876	3.8
February	49,745	54,071	58,397	52,345	3.3
March	47,489	51,618	55,747	50,193	2.8
April	32,116	35,684	39,252	34,423	3.7
May	18,952	20,600	22,248	21,433	-3.9
June	9,159	10,065	10,971	10,376	-3.0
July	6,301	7,160	8,019	7,356	-2.7
August	5,894	6,698	7,502	6,780	-1.2
September	6,382	6,937	7,492	* ²	* ²
October	14,925	16,223	17,521	* ²	* ²

¹ Source: PUCO Form SG-1 and PUCO, Division of Forecasting.

² * = Actual figures not available.

FIGURE B-1. MONTHLY OHIO RESIDENTIAL NATURAL GAS CONSUMPTION¹
ACTUAL AND PROJECTED (JANUARY 1980-OCTOBER 1990)

MILLION CUBIC FEET



ACTUAL
PROJECTED

¹ Source: Monthly Gas Report.

**Table B-6. Independent Forecast of Ohio Natural Gas
End User Requirements: Commercial Sector¹
(MMCF)**

Month	Lower 95% Confidence Limit	PUCO Forecast ² (1989-90)	Upper 95% Confidence Limit	Actual ² (1988-89)	Forecast Percentage Change
November	11,339	12,193	13,047	12,467	-2.2
December	17,401	18,711	20,021	18,205	2.8
January	20,458	22,481	24,504	21,655	3.8
February	19,530	21,228	22,926	20,771	2.2
March	17,266	18,767	20,268	19,759	-5.0
April	12,579	13,526	14,473	12,994	4.1
May	7,553	8,121	8,689	7,817	3.9
June	3,567	3,835	4,103	4,025	-4.7
July	2,730	2,935	3,140	2,894	1.4
August	2,621	2,818	3,015	2,766	1.9
September	2,994	3,219	3,444	* ³	* ³
October	6,720	7,304	7,888	* ³	* ³

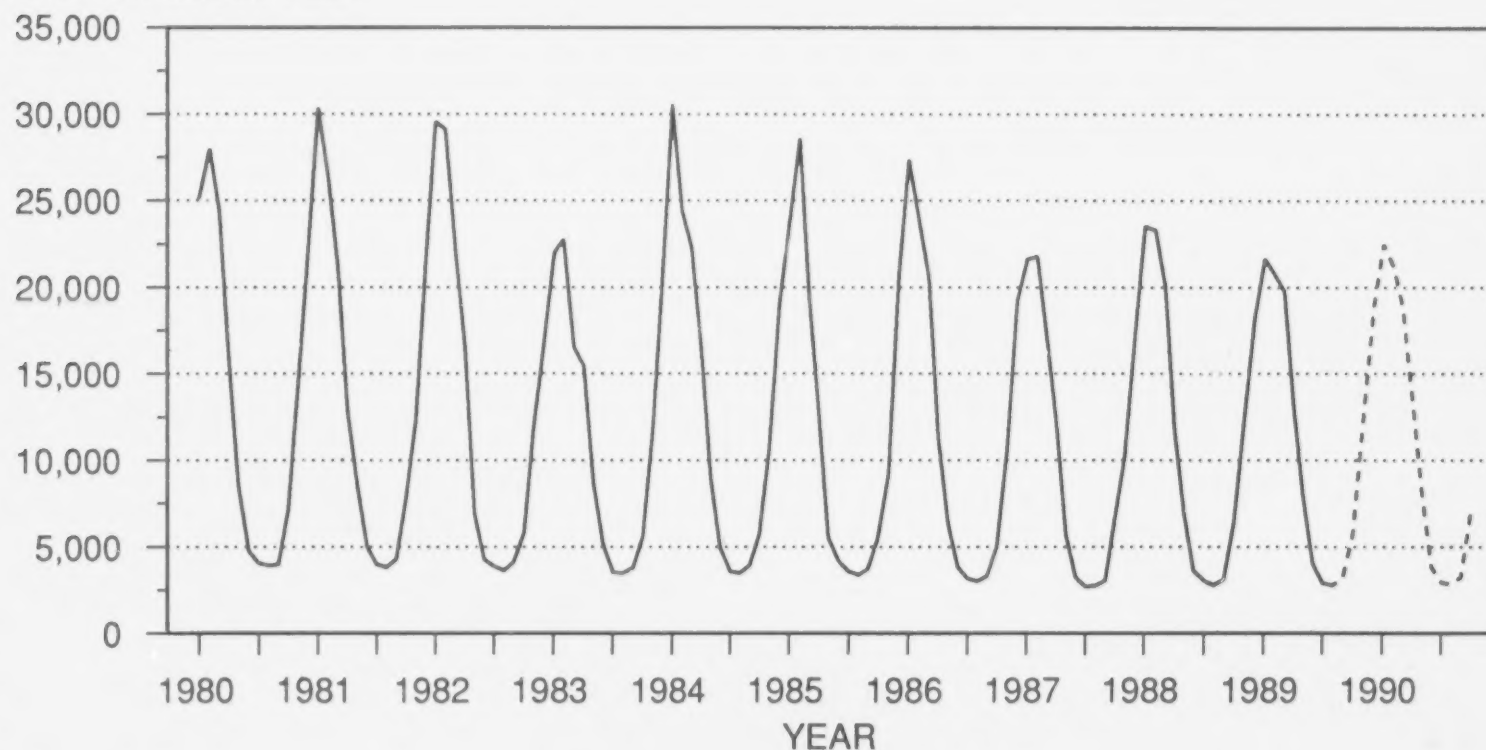
¹ Source: PUCO Form SG-1 and PUCO, Division of Forecasting.

² Forecast and Actual data do not include non-tariff or transportation gas.

³ * = Actual figures not available.

FIGURE B-2. MONTHLY OHIO COMMERCIAL NATURAL GAS CONSUMPTION¹
ACTUAL AND PROJECTED (JANUARY 1980-OCTOBER 1990)

MILLION CUBIC FEET



ACTUAL PROJECTED

¹ Source: Monthly Gas Report.

Note: Forecast and Actual do not include non-tariff or transportation gas.

**Table B-7. Independent Forecast of Ohio Natural Gas
End User Requirements: Industrial Sector¹
(MMCF)**

Month	Lower 95% Confidence Limit	PUCO Forecast ² (1989-90)	Upper 95% Confidence Limit	Actual ² (1988-89)	Forecast Percentage Change
November	4,688	5,209	5,730	5,076	2.6
December	5,228	5,809	6,390	6,005	-3.3
January	4,968	5,520	6,072	5,694	-3.1
February	4,881	5,423	5,965	5,580	-2.8
March	4,270	4,744	5,218	4,868	-2.5
April	3,423	3,803	4,183	3,796	0.2
May	2,669	2,966	3,263	2,813	5.4
June	1,915	2,128	2,341	2,263	-6.0
July	2,026	2,251	2,476	2,329	-3.3
August	1,935	2,150	2,365	2,059	4.4
September	2,714	3,016	3,318	* ³	* ³
October	3,379	3,754	4,129	* ³	* ³

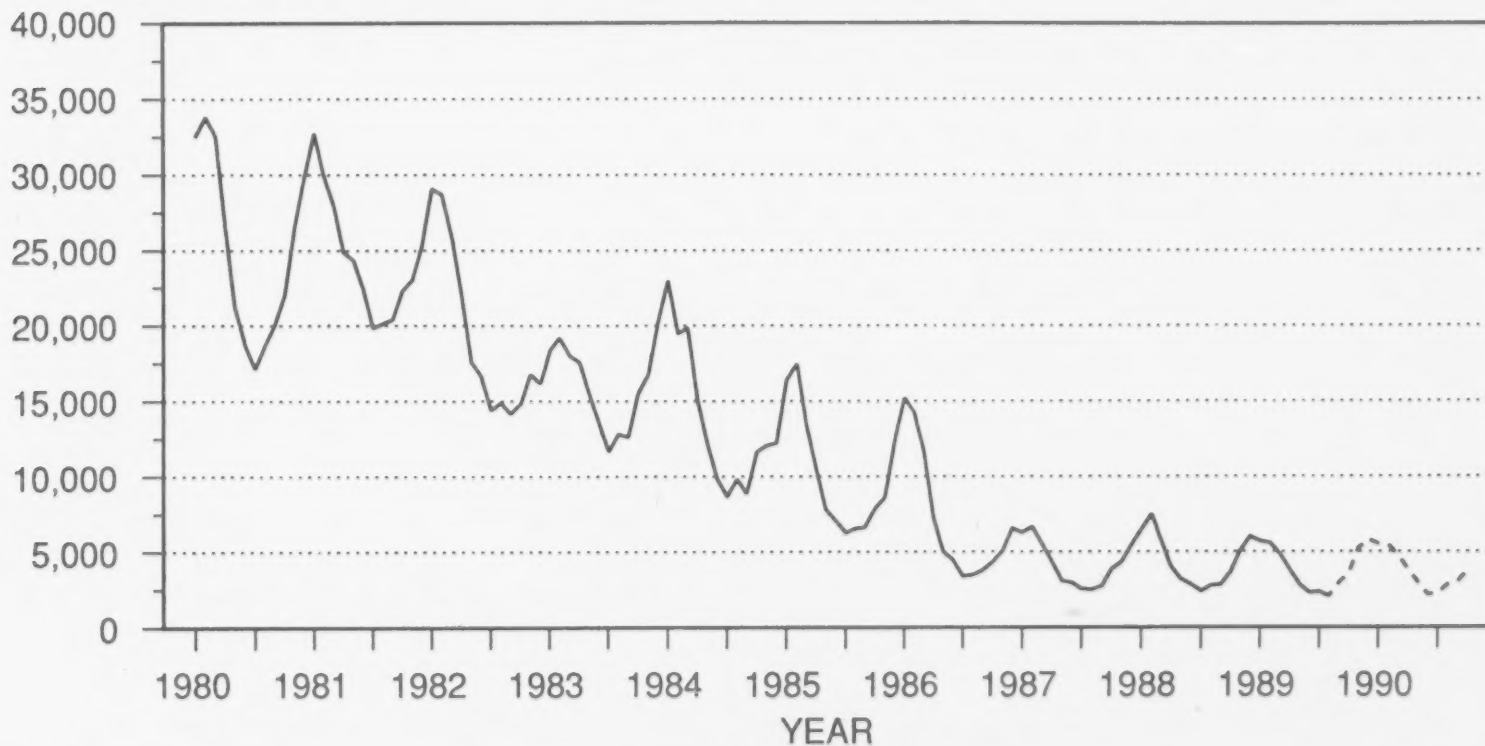
¹ Source: PUCO Form SG-1 and PUCO, Division of Forecasting.

² Forecast and Actual data do not include non-tariff or transportation gas.

³ * = Actual figures not available.

FIGURE B-3. MONTHLY OHIO INDUSTRIAL NATURAL GAS CONSUMPTION¹
ACTUAL AND PROJECTED (JANUARY 1980-OCTOBER 1990)

MILLION CUBIC FEET



ACTUAL PROJECTED

¹ Source: Monthly Gas Report.

Note: Forecast and Actual do not include non-tariff or transportation gas.

**Table B-8. Independent Forecast of Ohio Natural Gas
End User Requirements: All Sectors¹
(MMCF)**

Month	Lower 95% Confidence Limit	PUCO Forecast ² (1989-90)	Upper 95% Confidence Limit	Actual ² (1988-89)	Forecast Percentage Change
November	49,933	54,275	58,617	56,756	-4.4
December	74,066	81,391	88,716	84,078	-3.2
January	76,085	82,701	89,317	78,634	5.2
February	83,817	91,105	98,393	89,389	1.9
March	60,384	65,635	70,886	66,461	-1.2
April	42,139	45,803	49,467	43,884	4.4
May	32,199	34,999	37,799	36,434	-3.9
June	20,360	22,130	23,900	22,674	-2.4
July	17,733	19,275	20,817	19,680	-2.1
August	19,197	20,866	22,535	20,254	3.0
September	19,427	21,116	22,805	* ³	* ³
October	51,639	56,129	60,619	* ³	* ³

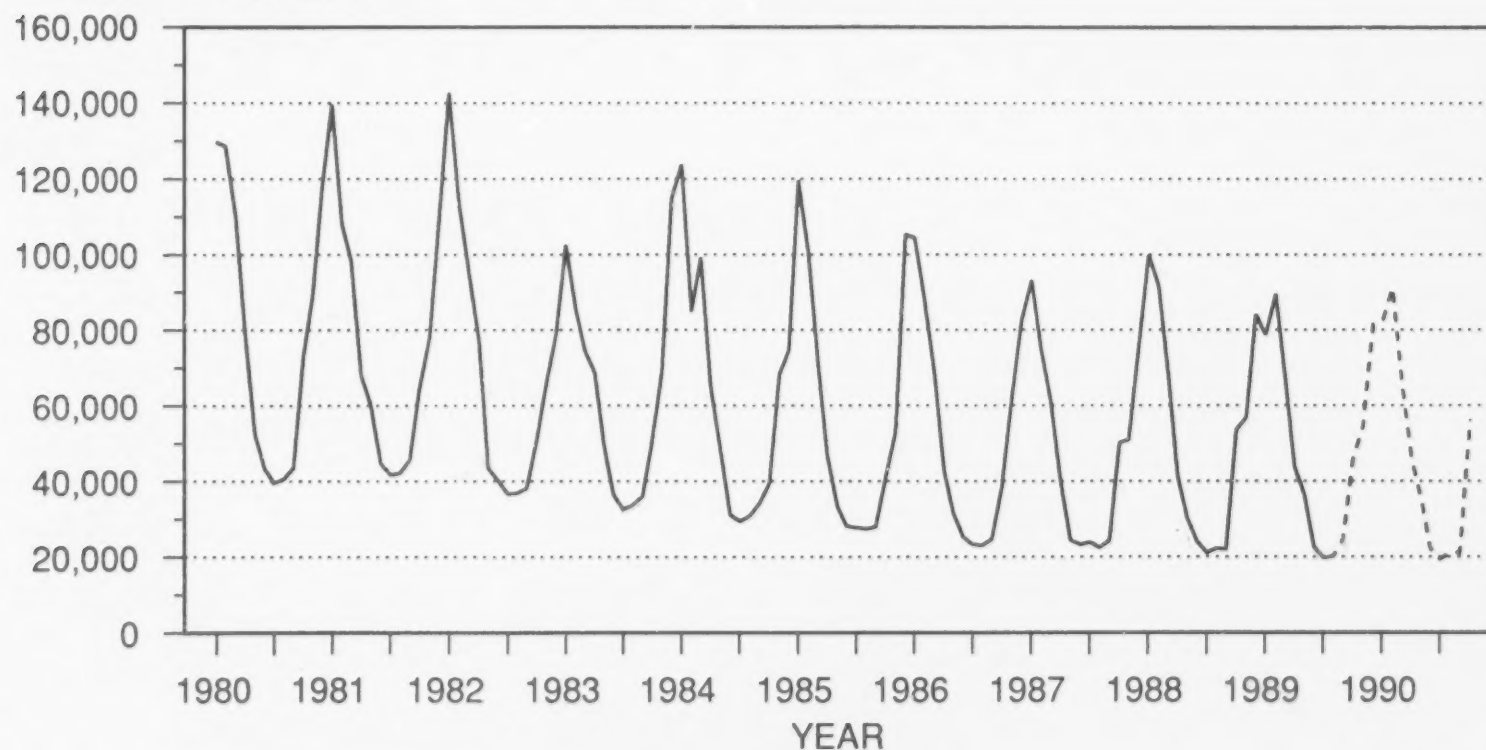
¹ Source: PUCO Form SG-1 and PUCO, Division of Forecasting.

² Forecast and Actual data do not include non-tariff or transportation gas.

³ * = Actual figures not available.

FIGURE B-4. MONTHLY OHIO TOTAL NATURAL GAS CONSUMPTION¹
ACTUAL AND PROJECTED (JANUARY 1980-OCTOBER 1990)

MILLION CUBIC FEET



ACTUAL PROJECTED

¹ Source: Monthly Gas Report.

Note: Forecast and Actual do not include non-tariff or transportation gas.

TABLE B-9. PROJECTED SUPPLY AND DEMAND FOR EIGHT MAJOR OHIO NATURAL GAS UTILITIES

COMPANY: CINN. GAS & ELEC.

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/89	10/89	11/89	12/89	1/90	2/90	3/90	4/90	5/90	6/90	7/90	8/90	SUMMER	WINTER	YEAR
SUPPLY	2075	3782	4470	10059	11907	9993	7770	4770	4734	1654	1671	1565	20251	46199	66450
DEMAND	2075	3782	4470	10059	11907	9993	7770	4770	4734	1654	1671	1565	20251	46199	66450
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: COLUMBIA GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/89	10/89	11/89	12/89	1/90	2/90	3/90	4/90	5/90	6/90	7/90	8/90	SUMMER	WINTER	YEAR
SUPPLY	4807	10333	20088	29617	32646	29661	25261	13247	6085	3179	4328	4486	46465	135273	181738
DEMAND	4807	10333	20088	29617	32646	29661	25261	13247	6085	3179	4328	4486	46465	135273	181738
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: EAST OHIO GAS

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/89	10/89	11/89	12/89	1/90	2/90	3/90	4/90	5/90	6/90	7/90	8/90	SUMMER	WINTER	YEAR
SUPPLY	15323	22745	26374	31570	37163	32188	27317	16751	19767	15257	14187	13405	117435	154612	272047
DEMAND	15323	22745	26374	31570	37163	32188	27317	16751	19767	15257	14187	13405	117435	154612	272047
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: DAYTON POWER & LIGHT

PROJECTED SUPPLY AND DEMAND (IN MMCF)

MONTH/YEAR	9/89	10/89	11/89	12/89	1/90	2/90	3/90	4/90	5/90	6/90	7/90	8/90	SUMMER	WINTER	YEAR
SUPPLY	930	1970	4483	6394	8538	8312	5757	4927	2091	1322	975	1177	13392	33484	46876
DEMAND	930	1970	4483	6394	8538	8312	5757	4927	2091	1322	975	1177	13392	33484	46876
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

TABLE B-9. PROJECTED SUPPLY AND DEMAND FOR EIGHT MAJOR OHIO NATURAL GAS UTILITIES

COMPANY: NATIONAL GAS

MONTH/YEAR	PROJECTED SUPPLY AND DEMAND (IN MMCF)												SUMMER	WINTER	YEAR
	9/89	10/89	11/89	12/89	1/90	2/90	3/90	4/90	5/90	6/90	7/90	8/90			
SUPPLY	184	139	270	426	539	469	473	285	155	267	270	269	1569	2177	3746
DEMAND	184	139	270	426	539	469	473	285	155	267	270	269	1569	2177	3746
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: OHIO GAS

MONTH/YEAR	PROJECTED SUPPLY AND DEMAND (IN MMCF)												SUMMER	WINTER	YEAR
	9/89	10/89	11/89	12/89	1/90	2/90	3/90	4/90	5/90	6/90	7/90	8/90			
SUPPLY	374	656	831	1214	1340	1177	1017	674	470	362	286	364	3186	5579	8765
DEMAND	374	656	831	1214	1340	1177	1017	674	470	362	286	364	3186	5579	8765
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

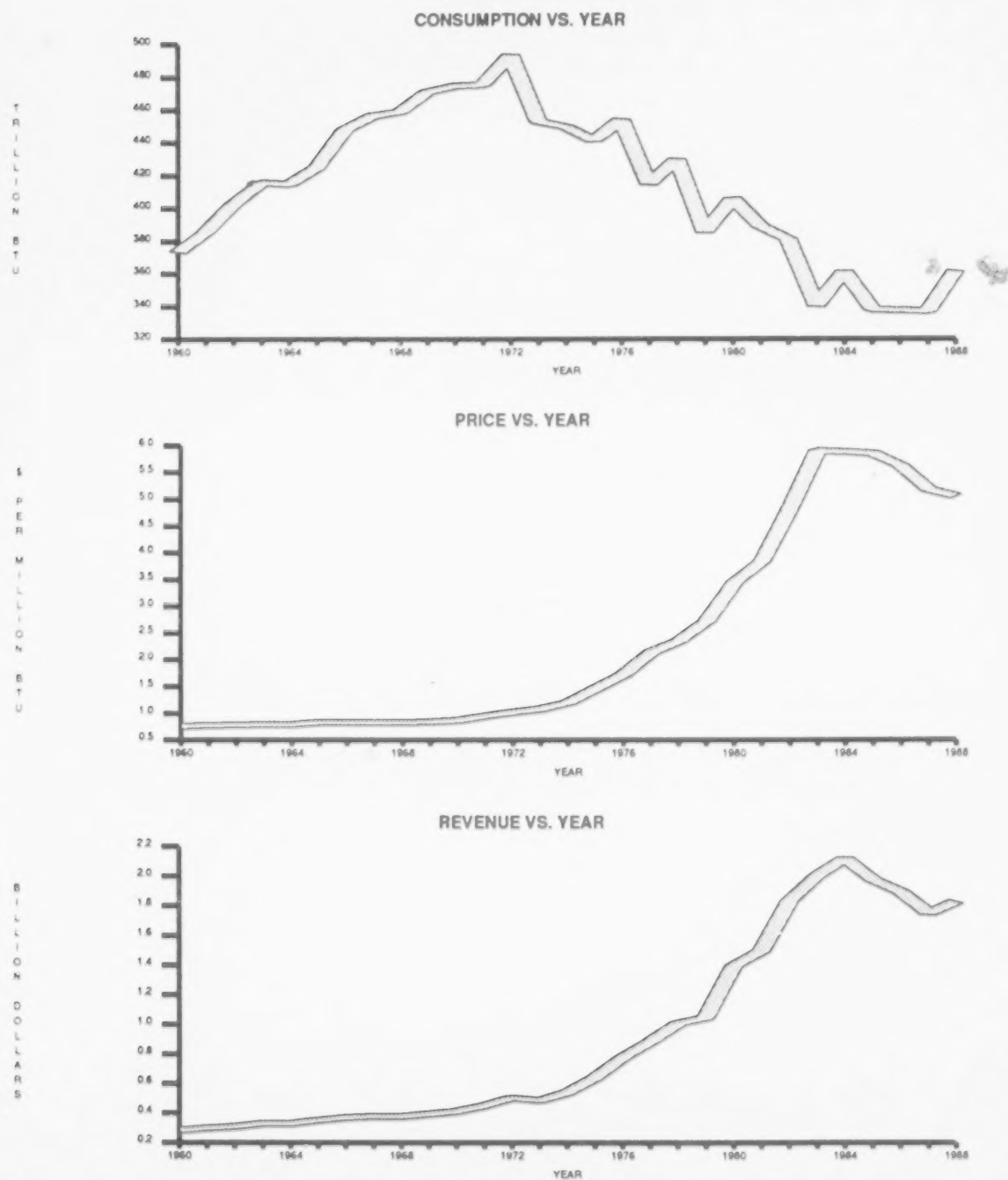
COMPANY: RIVER GAS

MONTH/YEAR	PROJECTED SUPPLY AND DEMAND (IN MMCF)												SUMMER	WINTER	YEAR
	9/89	10/89	11/89	12/89	1/90	2/90	3/90	4/90	5/90	6/90	7/90	8/90			
SUPPLY	165	206	237	381	447	417	312	266	194	143	143	141	1258	1794	3052
DEMAND	165	206	237	381	447	417	312	266	194	143	143	141	1258	1794	3052
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

COMPANY: WEST OHIO GAS

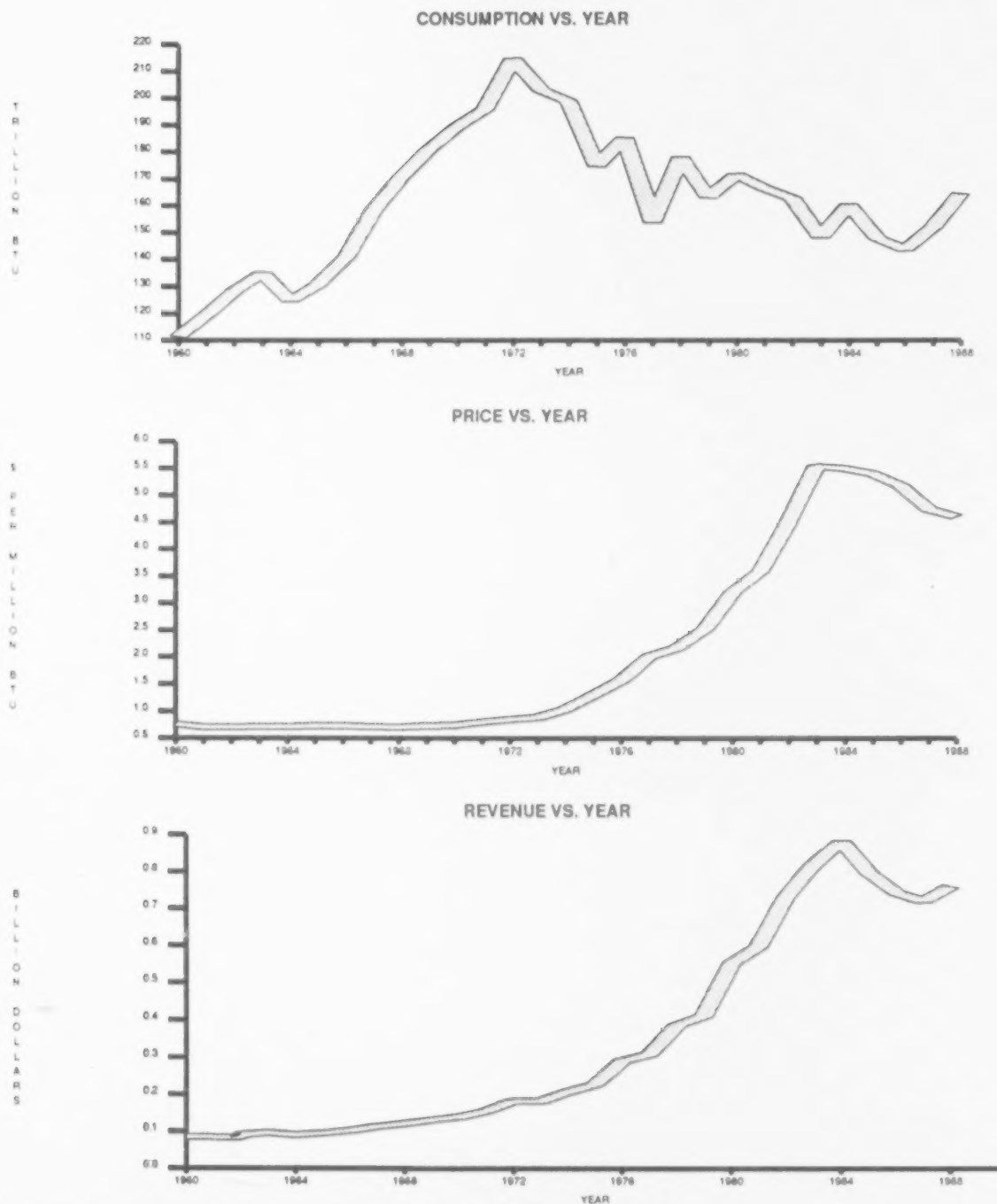
MONTH/YEAR	PROJECTED SUPPLY AND DEMAND (IN MMCF)												SUMMER	WINTER	YEAR
	9/89	10/89	11/89	12/89	1/90	2/90	3/90	4/90	5/90	6/90	7/90	8/90			
SUPPLY	244	555	933	1467	1831	1476	1301	750	419	221	170	185	2544	7008	9552
DEMAND	244	555	933	1467	1831	1476	1301	750	419	221	170	185	2544	7008	9552
DEFICIENCY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% DEFICIENCY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

**FIGURE B-5. ANNUAL OHIO NATURAL GAS CONSUMPTION,
PRICE AND REVENUE: RESIDENTIAL SECTOR
(1960-1988)**



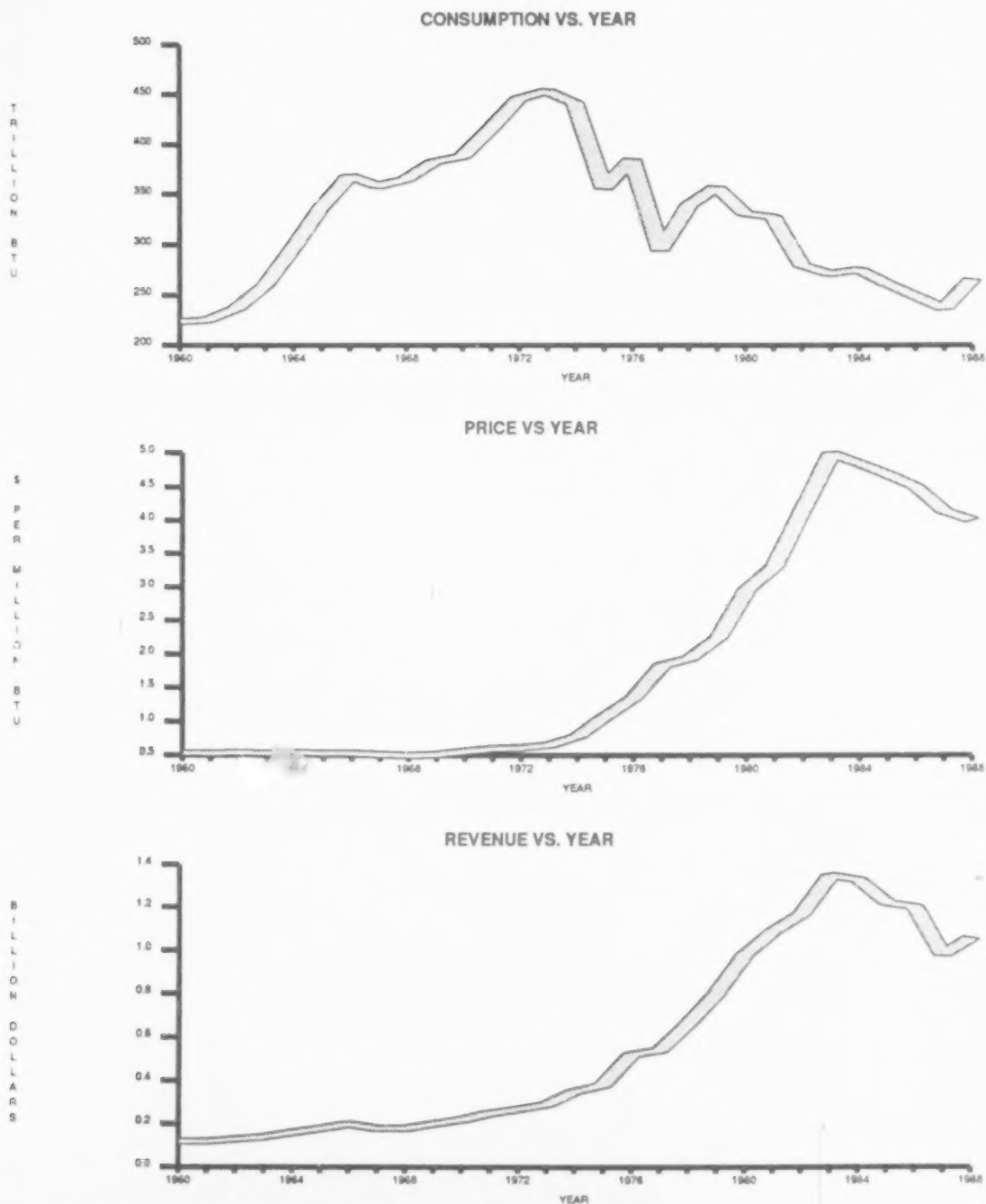
Source: The Natural Gas Annual and the Division of Forecasting.

**FIGURE B-6. ANNUAL OHIO NATURAL GAS CONSUMPTION,
PRICE AND REVENUE: COMMERCIAL SECTOR
(1960-1988)**



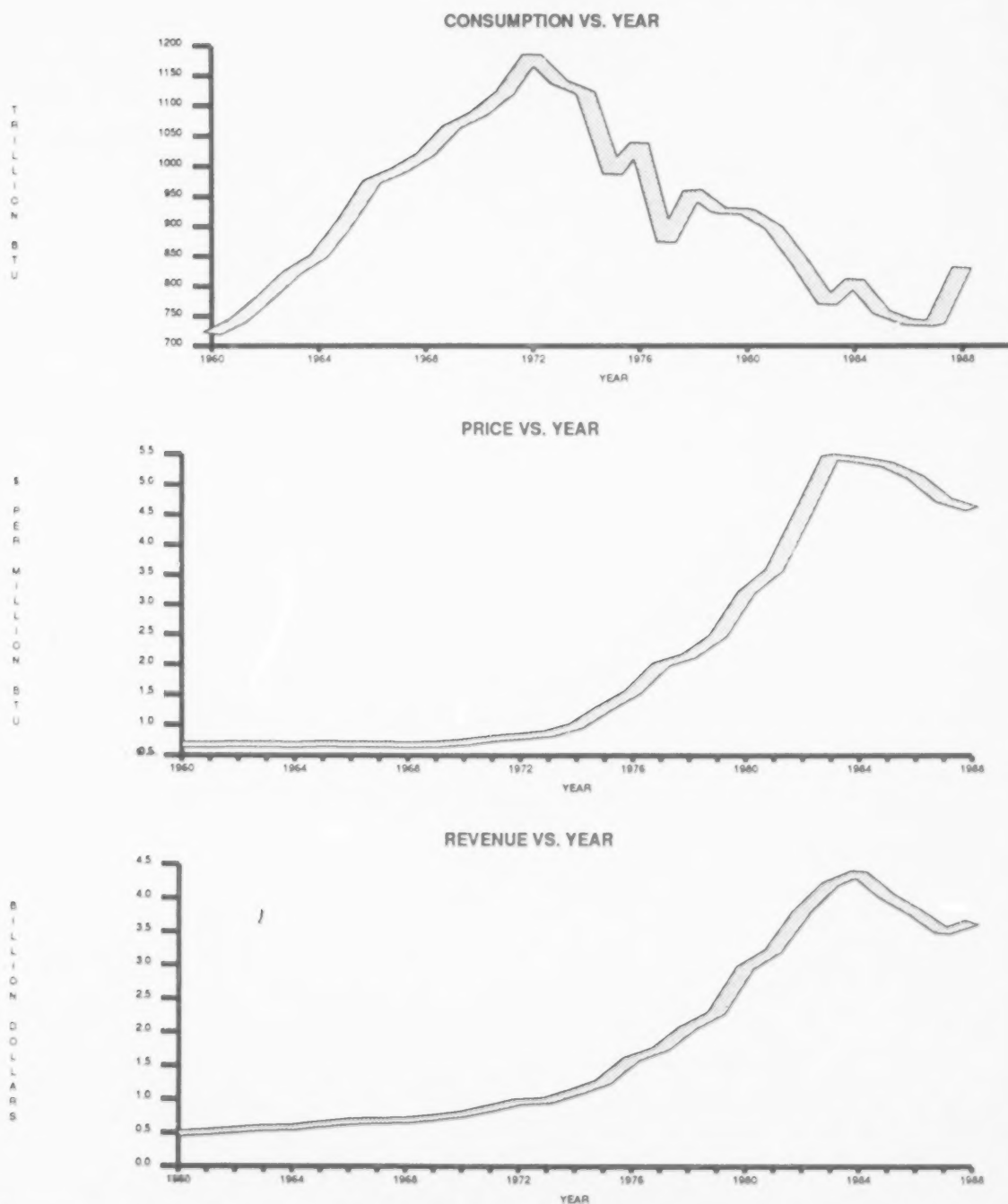
Source: The Natural Gas Annual and the Division of Forecasting.

**FIGURE B-7. ANNUAL OHIO NATURAL GAS CONSUMPTION,
PRICE AND REVENUE: INDUSTRIAL SECTOR
(1960-1988)**



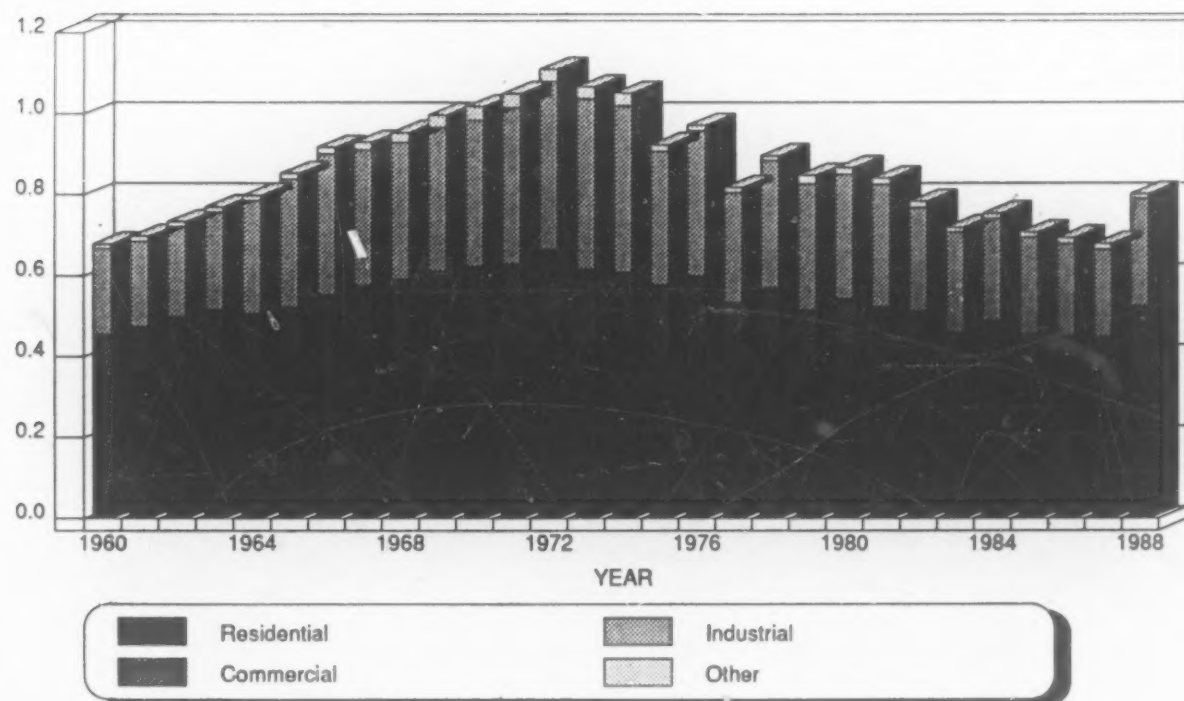
Source: The Natural Gas Annual and the Division of Forecasting.

**FIGURE B-8. ANNUAL OHIO NATURAL GAS CONSUMPTION,
PRICE AND REVENUE: TOTAL OF ALL SECTORS
(1960-1988)**



Source: The Natural Gas Annual and the Division of Forecasting.

FIGURE B-9. ANNUAL OHIO NATURAL GAS CONSUMPTION
BY SECTOR (1960-1988)



Source: The Natural Gas Annual and the Division of Forecasting.

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